

# CHAPTER IV — SUMMARY OF TROPICAL CYCLONES

## 1. GENERAL RESUME

During 1974, there was a sharp reversal from the abnormally light tropical cyclone activity observed during 1973. Named tropical cyclones numbered 32 during 1974 (Table 4-1) which is 10% higher than the latest 15-year average<sup>1</sup> displayed in Table 4-2. Climatological statistics on typhoons are given in Table 4-3. Less than half (47%) of these tropical storms developed to typhoon strength (15)--well below the average ratio of 65% derived from the long term average (Table 4-4). Deviation of normal monthly typhoon distribution was particularly noticeable during July and August when only

3 were recorded in contrast to the climatological average of 7.

Warnings were issued in 1974 on numbered tropical cyclones during 148 calendar days spanning all months except February. This closely matches the mean of the past 15 years (Table 4-5) but is a significant increase (almost twice) over the number of warning days during 1973.

The number of typhoon days (Table 4-6), however, numbered only 62, well below the 15-year average of 90 days. This reflects the tendency of this season's tropical cyclones not to develop beyond storm strength.

TABLE 4-1. 1974 TROPICAL CYCLONES

CYCLONE	TYPE	NAME	(PRD OF WRNG)	CALENDAR DAYS OF WARNING	MAX SFC WIND+	MIN OBS SLP	TOTAL	WARNINGS ISSUED	
								NO. AS TYPHOONS	DISTANCE TRAVELED
01	TS	WANDA	10 JAN - 13 JAN	4	55	992	15	---	1050
02	TS	AMY	14 MAR - 19 MAR	6	45	987	21	---	1750
03	TS	BABE	26 APR - 02 MAY	7	60	983	26	---	1600
04	TY	CARLA	02 MAY - 07 MAY	6	80	963	22	7	1550
05	TD	---	07 JUN - 08 JUN	2	30	---	5	---	150
06	TY	DINAH	08 JUN - 14 JUN	7	70	974	26	7	1550
07	TS	EMMA	13 JUN - 18 JUN	6	60	988	21	---	1300
08	TS	FREDA	21 JUN - 22 JUN	2	45	989	7	---	800
09	TY	GILDA	30 JUN - 07 JUL	8	90	944	28	18	1400
10	TS	HARRIET	15 JUL - 18 JUL	4	45	996	13	---	900
11	TS	JEAN	17 JUL - 20 JUL	4	45	995	14	---	850
12	TY	IVY	17 JUL - 22 JUL	6	95	945	23	15	1850
13	TS	KIM	23 JUL - 24 JUL	2	50	989	6	---	350
14	TS	LUCY	09 AUG - 11 AUG	3	54	995	10	---	350
15	TY	MARY	*	13	70	964	47	5	3400
16	TD	---	14 AUG - 15 AUG	2	30	994	5	---	250
17	TS	NADINE	15 AUG - 18 AUG	4	50	982	14	---	1600
18	TS	OLIVE	(CENTRAL PACIFIC HURRICANE CENTER)						
19	TY	POLLY	25 AUG - 02 SEP	9	95	948	31	20	1850
20	TD	---	27 AUG - 28 AUG	2	30	994	6	---	300
21	TS	ROSE	28 AUG - 31 AUG	4	50	985	13	---	800
22	TY	SHIRLEY	04 SEP - 09 SEP	6	70	972	21	9	950
23	TS	TRIX	05 SEP - 06 SEP	2	40	---	5	---	250
24	TY	VIRGINIA	12 SEP - 16 SEP	5	75	969	15	9	780
25	TS	WENDY	24 SEP - 30 SEP	7	60	984	24	---	800
26	TY	AGNES	24 SEP - 02 OCT	9	105	961	30	17	2000
27	TY	BESS	08 OCT - 14 OCT	7	65	980	25	10	1950
28	TY	CARMEN	14 OCT - 19 OCT	6	75	974	21	13	1250
29	TY	DELLA	21 OCT - 27 OCT	7	90	958	25	16	1600
30	TY	ELAINE	24 OCT - 31 OCT	8	95	943	29	14	1700
31	TS	FAYE	01 NOV - 04 NOV	4	55	987	13	---	1250
32	TY	GLORIA	03 NOV - 09 NOV	7	120	931	27	15	1850
33	TS	HESTER	14 NOV - 15 NOV	2	35	1000	5	---	350
34	TY	IRMA	21 NOV - 02 DEC	12	115	939	44	19	2250
35	TS	JUDY	18 DEC - 19 DEC	2	40	998	6	---	150
36	TS	KIT	*	5	40	995	14	---	1200
1974 TOTALS				148**			657	194	

\*Mary 11 Aug - 19 Aug and 23 Aug - 26 Aug  
 Kit 19 Dec - 21 Dec and 23 Dec - 24 Dec

\*\*Overlapping days included only once in sum  
 +Over water estimate (one-minute averaging period)

No super typhoons (maximum sustained winds > 130 knots) were observed during 1974, the first year since documentation began in 1959 that no typhoon reached this category. It is suspected, however, that Typhoon Gloria may have approached super typhoon intensity prior to landfall on the Philippine archipelago in early November. This is based on the trend of central pressure fall of the final aircraft fixes, however, lack of additional supporting evidence restricts Gloria from being entered in the super typhoon category.

One of the synoptic features during August and September was the penetration of monsoon westerlies to more poleward latitudes than normal. This situation was caused initially by the extremely large circulation of Typhoon Mary moving to subtropical latitudes. This resulted in an anomalous monsoon trough location extending from coastal South China northeastward to the Ryukyus. Of the four tropical cyclones that developed during this period three (Tropical Depression No. 20, Tropical Storm Rose, and Typhoon Shirley) displayed unusual initial courses compared to climatology by heading northeasterly.

By early October, the monsoon trough became re-established near its normal position in the Philippine Sea, and triggered development of a series of destructive cyclones which crossed the Philippine Islands. This parade of tropical cyclones, led by Bess in October and climaxed by Gloria in early November, subjected the Island of Luzon to the strikes of five typhoons in a period of slightly less than a month. The frequency of these repeated onslaughts to Luzon is unparalleled in climatological records available since World War II.

The Tropical Upper Tropospheric Trough (TUTT) was very active during 1974 producing 19% of the season's named tropical cyclones. Typhoons Polly, Virginia, Agnes and Tropical Storms Freda, Kim, and Wendy developed from disturbances caused by upper lows in the trough. A study of the long term average (Atkinson 1974) indicates approximately 15% of the named tropical cyclones in the western North Pacific can be traced to these disturbances which originate in the trade wind region, and are produced on the south and east periphery of the upper level lows.

TABLE 4-2 FREQUENCY OF TROPICAL STORMS (INCLUDING TYPHOONS) BY MONTHS AND YEARS

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1945	0	0	0	1	1	2	5	7	6	1	3	0	26
1946	0	0	1	0	1	2	3	2	3	1	2	0	15
1947	0	0	1	0	1	1	3	3	5	6	6	1	27
1948	1	0	0	0	2	2	2	5	5	4	3	2	26
1949	1	0	0	0	0	1	5	3	6	1	3	2	22
1950	0	0	0	0	1	2	3	2	3	3	3	1	18
1951	0	0	1	2	1	1	1	2	2	4	1	2	17
1952	0	0	0	0	0	3	3	4	5	6	3	4	28
1953	0	1	0	0	1	2	2	6	3	4	3	1	23
1954	0	0	1	0	1	0	1	6	4	3	3	0	19
1955	1	0	1	1	0	1	6	3	3	4	1	1	22
1956	0	0	1	2	0	1	2	5	5	2	3	1	22
1957	2	0	0	1	1	1	1	3	5	4	3	0	21
1958	1	0	0	0	1	3	5	3	3	3	2	1	22
1959	0	1	1	1	0	0	3	6	6	4	2	2	26
AVERAGE (1945-59)	0.4	0.1	0.5	0.5	0.7	1.5	3.0	4.0	4.3	3.3	2.7	1.2	22.3
1960	0	0	0	1	1	3	3	10	3	4	1	1	27
1961	1	1	1	1	3	2	5	4	6	5	1	1	31
1962	0	1	0	1	2	0	6	7	3	5	3	2	30
1963	0	0	0	1	1	3	4	3	5	5	0	3	25
1964	0	0	0	0	2	2	7	9	7	6	6	1	40
1965	2	2	1	1	2	3	5	6	7	2	2	1	34
1966	0	0	0	1	2	1	5	8	7	3	2	1	30
1967	1	0	2	1	1	1	6	8	7	4	3	1	35
1968	0	0	0	1	1	1	3	8	3	6	4	0	27
1969	1	0	1	1	0	0	3	4	3	3	2	1	19
1970	0	1	0	0	0	2	2	6	4	5	4	0	24
1971	1	0	1	3	4	2	8	4	6	4	2	0	35
1972	1	0	0	0	1	3	6	5	4	5	2	3	30
1973	0	0	0	0	0	0	7	5	2	4	3	0	21
1974	1	0	1	1	1	4	4	5	5	4	4	2	32
AVERAGE (1960-70)	0.5	0.3	0.5	0.9	1.4	1.8	4.9	6.1	4.8	4.3	2.6	1.1	29.3

Based on available casualty reports, Typhoons Dinah and Gilda, Tropical Storm Wendy, and Tropical Depression No. 20 accounted for the majority of the tropical cyclone related casualties (Table 4-7). Typhoon Gilda proved the most disastrous of the year. Gilda's circulation triggered flashfloods and landslides in Korea and Japan in early July resulting in a heavy toll of lives (128). Damage estimates of \$1.2 billion in Japan rank it among the most costly to strike that country in recent years. Torrential rains from the extra-tropical stages of Tropical Depression No. 20 produced similar results on the western coast of Korea in late August, accounting for a combined missing and dead total of 77. The worst marine disaster occurred near southern Taiwan as 3,500 ton Panamanian freighter SUN SHANG sank in heavy seas produced by Tropical Storm Wendy (60 knots) with the loss of 31 crewmen.

The northern Philippine Islands experienced a high frequency of typhoons (?) during the year with Dinah's crossing Luzon in June being the most disastrous as casualties totaled 106 persons. The succession of typhoons during October and November crossing Luzon, however, also inflicted heavy damage (\$23 million) to the

rice and sugar cane crops with serious economic impact on the island republic. Reconnaissance of one of these typhoons (Bess) while in the South China Sea, led to the tragic loss of a U.S. Air Force weather reconnaissance aircraft and its crew of six.

Much of the pertinent meteorological data and tropical cyclone damage statistics in this chapter were based on information received from the following sources: Weather Bureau of the Republic of China; Royal Observatory of Hong Kong; Office of the High Commissioner, Trust Territory of the Pacific Islands; Japan Meteorological Agency; National Weather Service of the Republic of the Philippines; and the Environmental Data Service, National Oceanic and Atmospheric Administration, Liverpool Underwriters Association.

<sup>1</sup> The climatology of tropical cyclone activity in the western North Pacific during the last 30 years indicates a significant increase in tropical cyclones since 1960. This is probably due to better observational data, especially satellites, during recent years. Therefore, JTWC considers the last 15-year period as the most representative of the long term average.

TABLE 4-3 FREQUENCY OF TROPICAL STORMS REACHING TYPHOON INTENSITY BY MONTHS AND YEARS

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1945	0	0	0	0	0	1	2	5	3	1	1	0	13
1946	0	0	1	0	1	1	3	1	3	1	2	0	13
1947	0	0	0	0	1	1	0	3	4	5	4	1	19
1948	1	0	0	0	2	0	2	2	4	1	2	1	15
1949	1	0	0	0	0	1	3	3	3	1	1	1	14
1950	0	0	0	0	1	1	1	2	1	3	2	1	12
1951	0	0	1	2	1	1	1	2	2	3	1	2	16
1952	0	0	0	0	0	3	1	3	3	4	3	2	19
1953	0	1	0	0	1	1	2	4	2	4	1	1	17
1954	0	0	0	0	1	0	1	4	4	2	3	0	15
1955	1	0	1	1	0	1	5	3	3	2	1	1	19
1956	0	0	1	1	0	0	2	4	5	1	3	1	18
1957	1	0	0	1	1	1	1	2	5	3	3	0	18
1958	1	0	0	0	1	3	4	3	3	3	1	1	20
1959	0	0	0	1	0	0	1	5	3	3	2	2	17
AVERAGE (1945-59)	0.3	0.1	0.3	0.4	0.7	1.0	1.9	3.1	3.2	2.5	2.0	0.9	16.3
1960	0	0	0	1	0	2	2	8	0	4	1	1	19
1961	0	0	1	0	2	1	3	3	5	3	1	1	20
1962	0	0	0	1	2	0	5	7	2	4	3	0	24
1963	0	0	0	1	1	2	3	3	3	4	0	2	19
1964	0	0	0	0	2	2	6	3	5	3	4	1	26
1965	1	0	0	1	2	2	4	3	5	2	1	0	21
1966	0	0	0	1	2	1	3	6	4	2	0	1	20
1967	0	0	1	1	0	1	3	4	4	3	3	0	20
1968	0	0	0	1	1	1	1	4	3	5	4	0	20
1969	1	0	0	1	0	0	2	3	2	3	1	0	13
1970	0	1	0	0	0	1	0	4	2	3	1	0	12
1971	0	0	0	3	1	2	6	3	5	3	1	0	24
1972	1	0	0	0	1	1	4	4	3	4	2	2	22
1973	0	0	0	0	0	0	4	2	2	4	0	0	12
1974	0	0	0	0	1	2	1	2	3	4	2	0	15
AVERAGE (1960-74)	0.2	0.1	0.1	0.7	1.0	1.2	3.1	3.9	3.2	3.4	1.6	0.5	19.1

TABLE 4-4. RATIO OF TROPICAL STORM FREQUENCY DEVELOPMENT TO TYPHOON INTENSITY (1960-1974)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
AVERAGE NUMBER OF TROPICAL STORMS	0.5	0.3	0.5	0.9	1.4	1.8	4.9	6.1	4.8	4.3	2.6	1.1	29.3
AVERAGE NUMBER OF TYPHOONS	0.2	0.1	0.1	0.7	1.0	1.2	3.1	3.9	3.2	3.4	1.6	0.5	19.1
RATIO	.40	.33	.20	.78	.71	.67	.63	.64	.67	.79	.62	.45	.65

TABLE 4-5. SUMMARY OF JTWC WARNINGS 1960-1974

	1960-1974 (AVG)	1970	1971	1972	1973	1974
TOTAL NUMBER OF WARNINGS	704	533	747	739	390	657
CALENDAR DAYS OF WARNING	146	127	163	139	77	148
NUMBER OF WARNING DAYS WITH TWO OR MORE CYCLONES	50	29	54	46	27	38
NUMBER OF WARNING DAYS WITH THREE OR MORE CYCLONES	10	0	6	13	9	4

TABLE 4-6. TYPHOON DAYS 1960 - 1974

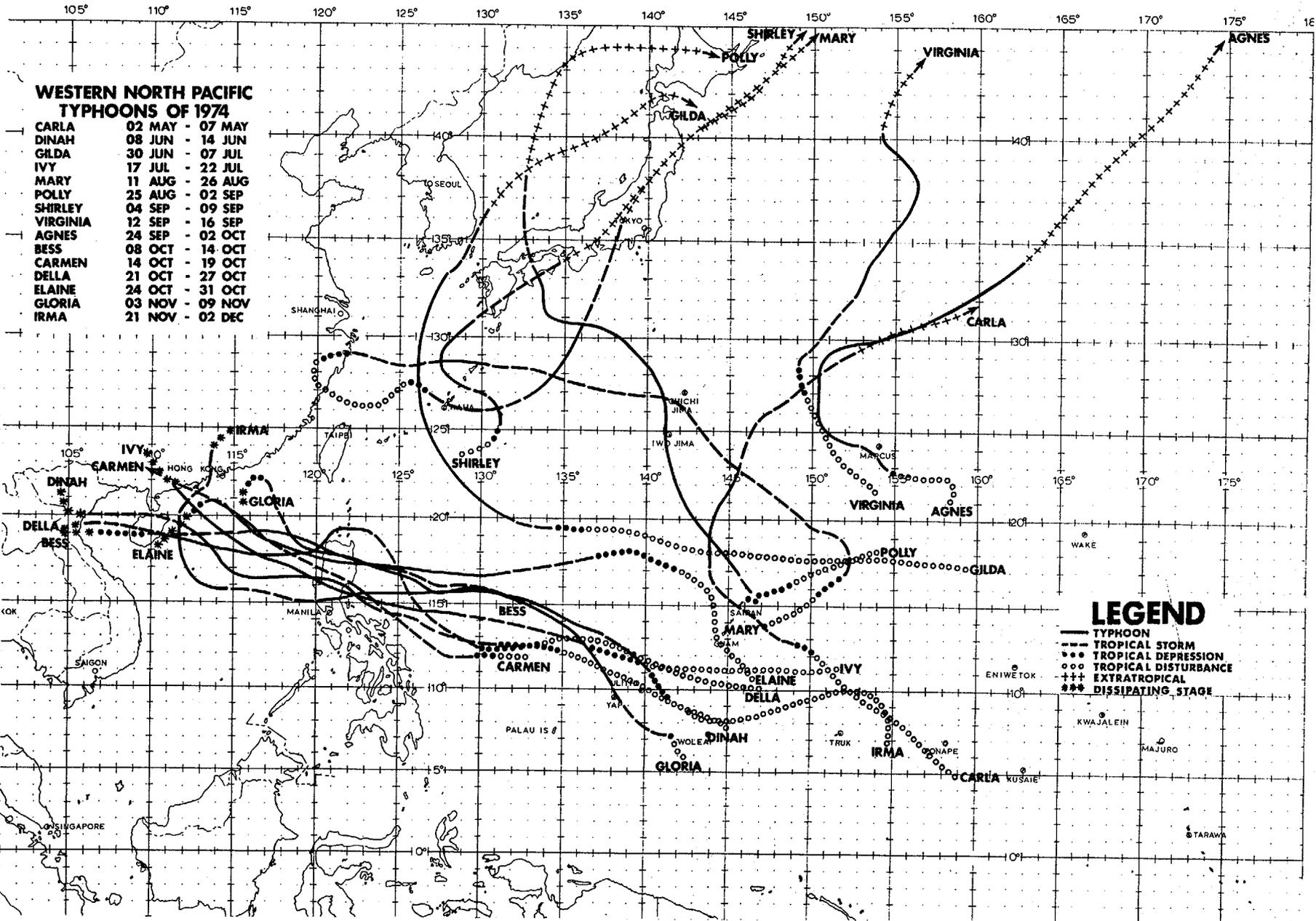
YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL PER YEAR
1960	---	---	---	2	---	10	13	36*	---	23*	2*	12	98
1961	---	---	8	---	8	2	10*	15	23*	17*	6	6	95
1962	---	---	---	7	4	---	14*	37*	8	17*	19*	---	119
1963	---	---	---	4	5	15	11	23*	14*	24*	---	11	107
1964	---	---	---	---	7	5*	22*	18*	28*	14	11*	6	111
1965	2	---	---	2	5	12*	19*	23*	25*	14	6	---	108
1966	---	---	---	5	11	6	7*	16*	23*	11	4	3	86
1967	---	---	2	7	---	4	14*	10	32*	21*	21*	---	111
1968	---	---	---	6	1	7	6	8	32*	19	18*	---	97
1969	5	---	---	5	---	---	8	6	10	18	10*	---	62
1970	---	5	---	---	---	2	5	24*	16	21*	6	---	79
1971	---	---	---	4	13*	8	20*	27*	21*	11	7	---	111
1972	2	---	---	---	1	6	39*	16	16*	21	9	11	121
1973	---	---	---	---	---	---	11*	7*	4	20*	---	---	42
1974	---	---	---	---	3	4	10	6	9	16*	13	---	62
TOTAL	9	5	10	42	58	81	209	272	261	280	132	49	1408
MEAN	0.6	0.3	0.7	2.8	3.9	5.4	13.9	18.1	17.4	18.7	8.8	3.3	93.9

\*Two typhoons occurring on the same day are counted as two typhoon days.

TABLE 4-7. LIST OF ESTIMATED CASUALTIES FOR THE 1974 SEASON

TYPE	NAME	DEATHS	MISSING
T	DINAH	75	35
T	GILDA	128	26
T	IVY	20	46
T	MARY	13	0
TD	NO. 20	9	68
T	POLLY	9	8
T	SHIRLEY	13	---
TS	WENDY	47	7
T	BESS	35	5
T	CARMEN	25	---
T	ELAINE	36	21
TS	FAYE	---	2
T	GLORIA	10	---
T	IRMA	11	---
TS	KIT	17	---
	TOTAL	434	214

NOTE: Only cyclones for which data are available are listed.



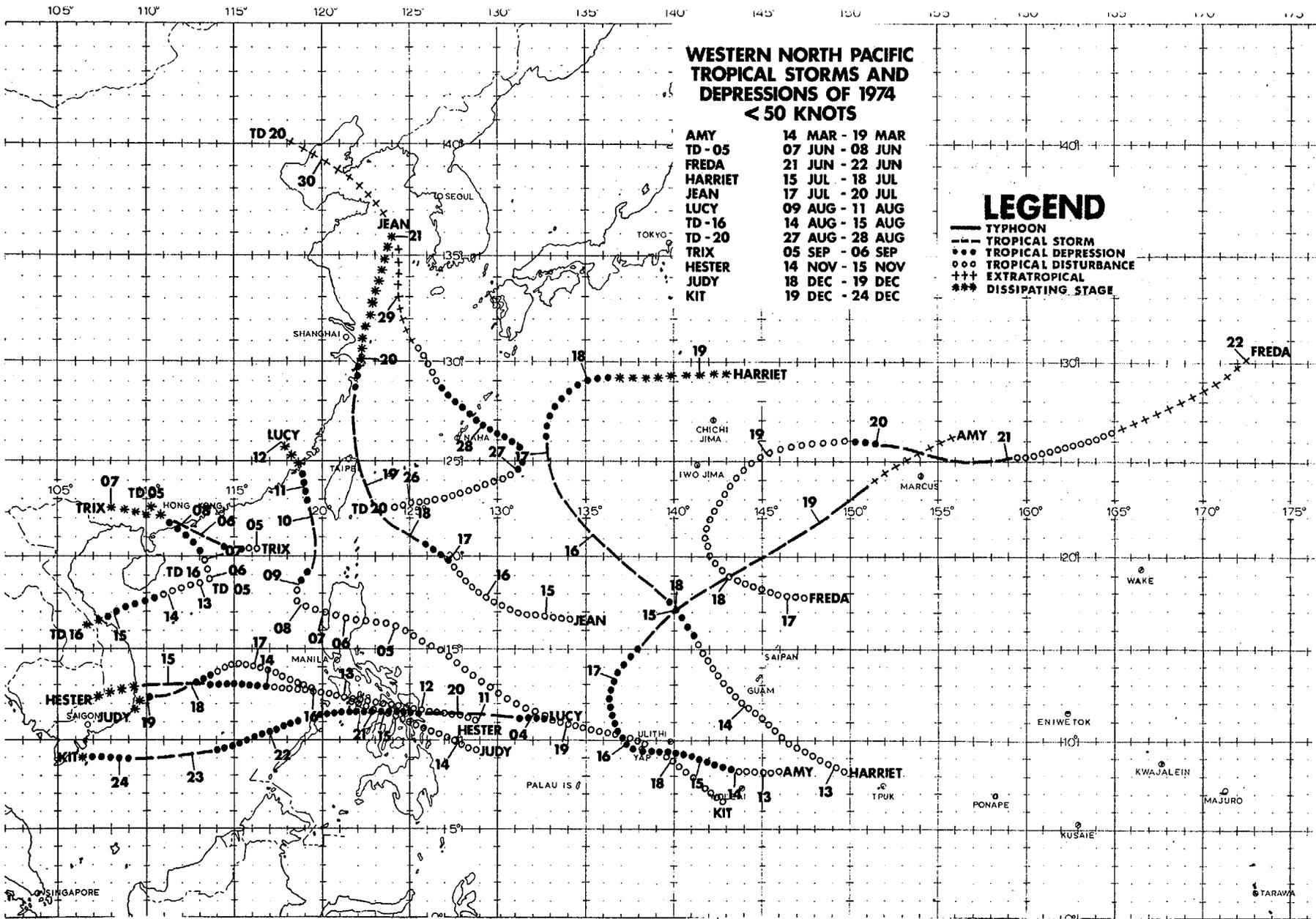
**WESTERN NORTH PACIFIC  
TYPHOONS OF 1974**

CARLA	02 MAY - 07 MAY
DINAH	08 JUN - 14 JUN
GILDA	30 JUN - 07 JUL
IVY	17 JUL - 22 JUL
MARY	11 AUG - 26 AUG
POLLY	25 AUG - 02 SEP
SHIRLEY	04 SEP - 09 SEP
VIRGINIA	12 SEP - 16 SEP
AGNES	24 SEP - 02 OCT
BESS	08 OCT - 14 OCT
CARMEN	14 OCT - 19 OCT
DELLA	21 OCT - 27 OCT
ELAINE	24 OCT - 31 OCT
GLORIA	03 NOV - 09 NOV
IRMA	21 NOV - 02 DEC

**LEGEND**

- TYPHOON
- - - TROPICAL STORM
- TROPICAL DEPRESSION
- TROPICAL DISTURBANCE
- + + + EXTRATROPICAL
- \*\*\* DISSIPATING STAGE

15

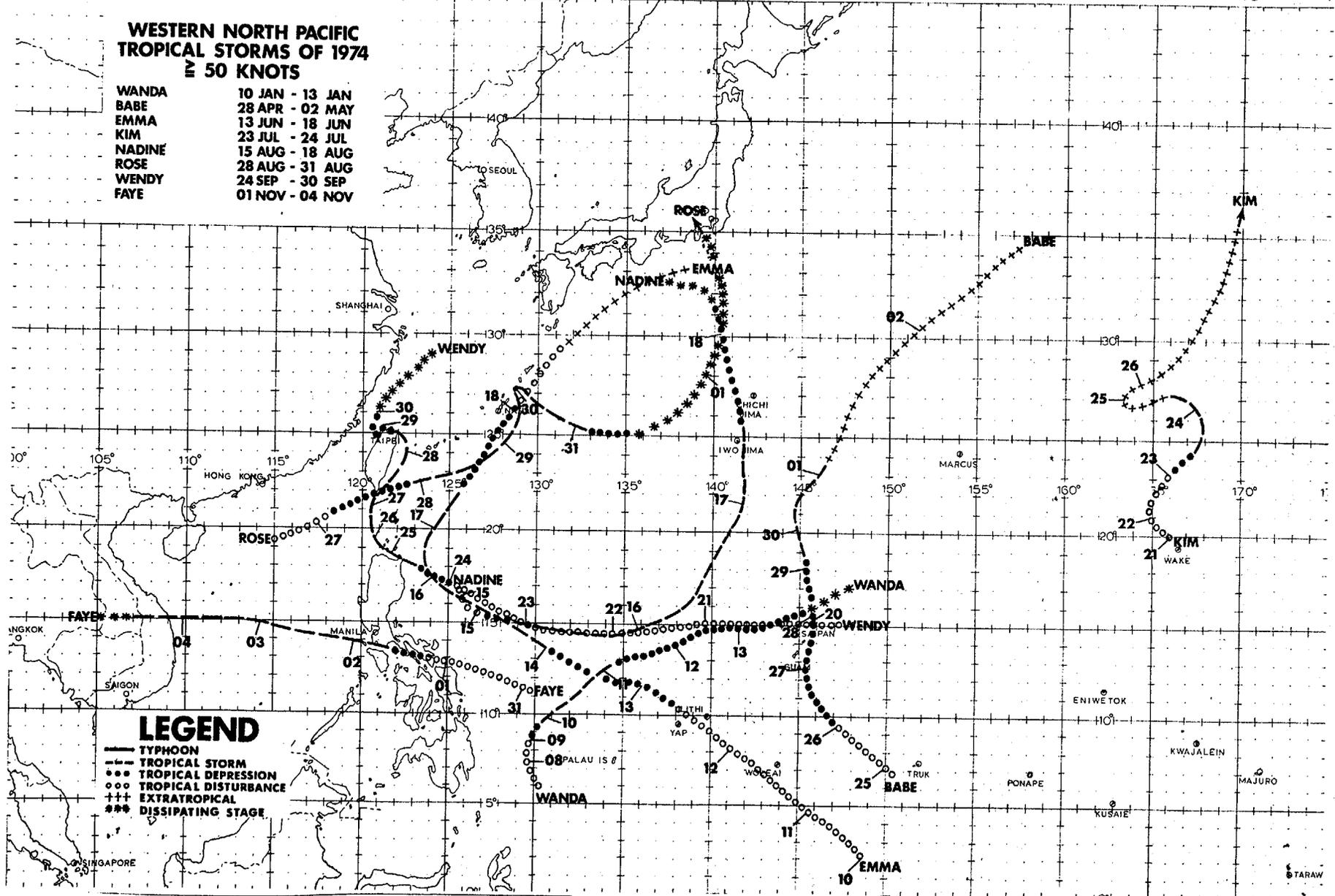


10° 105° 110° 115° 120° 125° 130° 135° 140° 145° 150° 155° 160° 165° 170° 175°

**WESTERN NORTH PACIFIC  
TROPICAL STORMS OF 1974  
≥ 50 KNOTS**

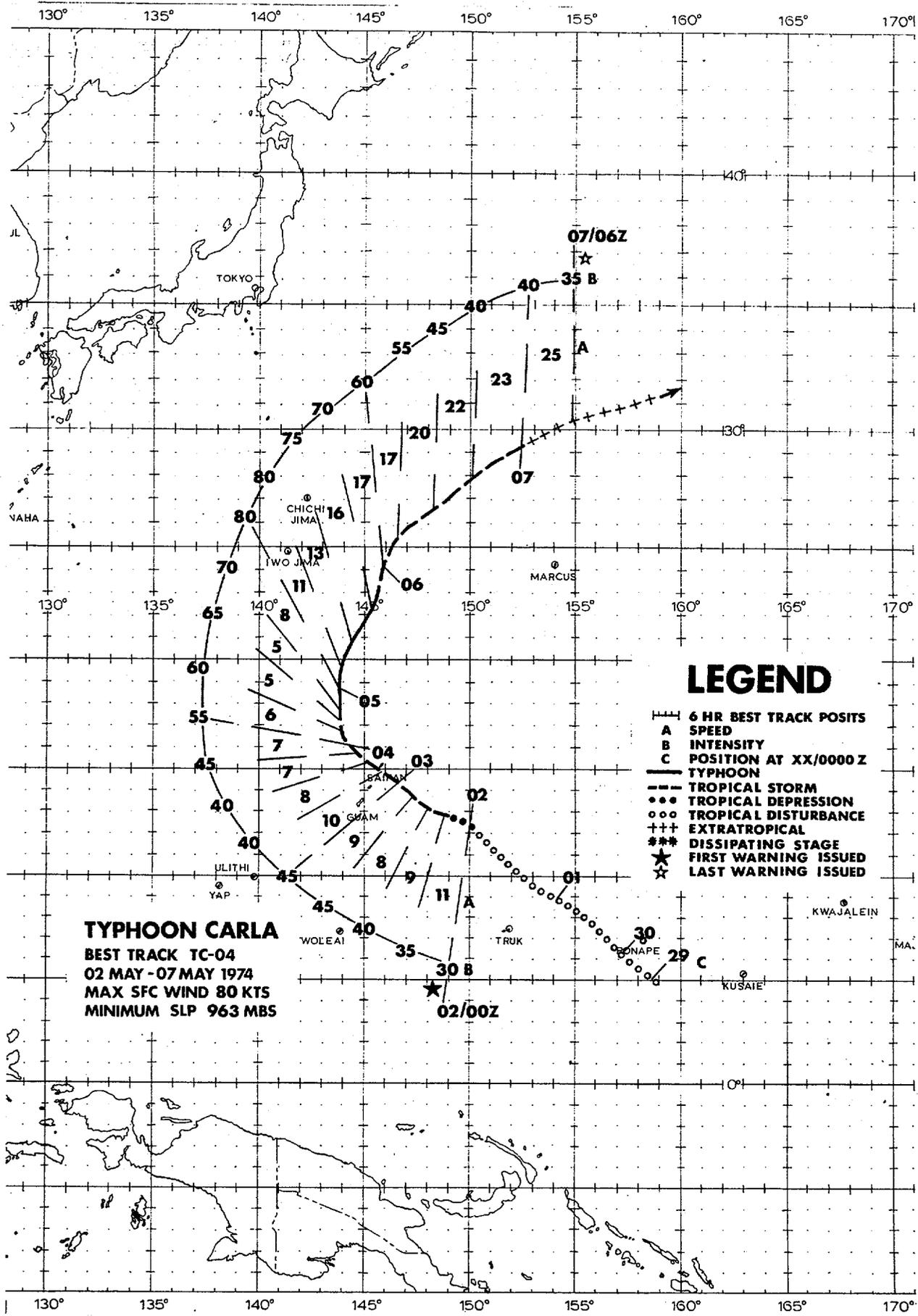
WANDA	10 JAN - 13 JAN
BABE	28 APR - 02 MAY
EMMA	13 JUN - 18 JUN
KIM	23 JUL - 24 JUL
NADINE	15 AUG - 18 AUG
ROSE	28 AUG - 31 AUG
WENDY	24 SEP - 30 SEP
FAYE	01 NOV - 04 NOV

17



**LEGEND**

- TYPHOON
- - - TROPICAL STORM
- TROPICAL DEPRESSION
- ○ ○ TROPICAL DISTURBANCE
- + + + EXTRATROPICAL
- \* \* \* DISSIPATING STAGE



**TYPHOON CARLA**  
 BEST TRACK TC-04  
 02 MAY - 07 MAY 1974  
 MAX SFC WIND 80 KTS  
 MINIMUM SLP 963 MBS

### LEGEND

- 6 HR BEST TRACK POSITS
- A SPEED
- B INTENSITY
- C POSITION AT XX/0000 Z
- TYPHOON
- - - TROPICAL STORM
- TROPICAL DEPRESSION
- TROPICAL DISTURBANCE
- +++ EXTRATROPICAL
- \*\*\* DISSIPATING STAGE
- ★ FIRST WARNING ISSUED
- ☆ LAST WARNING ISSUED

## 2. INDIVIDUAL TYPHOONS

### CARLA

In late April, the monsoon trough became active in the central Carolines, producing a tropical depression that later became Tropical Storm Babe. Shortly thereafter, another circulation in the trough near Ponape was noted on 29 April. The system tracked northwestward during the next three days, its development aided by the upper level outflow of Babe tracking north of the Marianas. By 2 May, the circulation located about 225 miles southwest of Saipan, had developed into Tropical Storm Carla (Figure 4-1).

Continuing a northwest track, Carla's center crossed Tinian in the south central Marianas about 0800Z on the 3rd. The U.S. Coast Guard Loran Station on southern Saipan (located a few miles to the north of the center) recorded a peak gust of 57 knots within an hour after passage of the center. The maximum 24-hour rainfall recorded on Saipan during passage was 2.63 inches.

With a mid-tropospheric long wave trough situated between 130 and 135 E, Carla began to turn poleward late on the 3rd. As Carla tracked west of the northern Marianas by some 100 nm on the 4th, aircraft reconnaissance indicated Carla's pressure had fallen to 978 mb and maximum winds around its center neared 65 kts. By 1200Z on the 4th, Carla became the season's first typhoon (Figure 4-2).

The heavy rains and gusty winds brought by Carla to the Marianas took a heavy toll on fruit crops (bananas, citrus, etc.). Rota, Tinian, and Saipan reported 95% damage to crops while Pagan and Agrihan in the northern Marianas reported 45% damage.

Carla continued to deepen on the 5th while tracking northward. Reconnaissance aircraft measurements indicated peak intensity was attained early in the day southwest of the Maug Islands as Carla's central pressure dipped to 963 mb. Maximum sustained surface winds (1 min) were probably close to 80-85 knots near the eye at this time.

Increasing tropospheric shear began to weaken Carla after passage north of the 20th parallel as the cyclone approached the base of the mid-tropospheric westerlies. Twenty-four hours after reaching peak intensity, Carla was reduced to tropical storm intensity, 300 nm east of Iwo Jima.

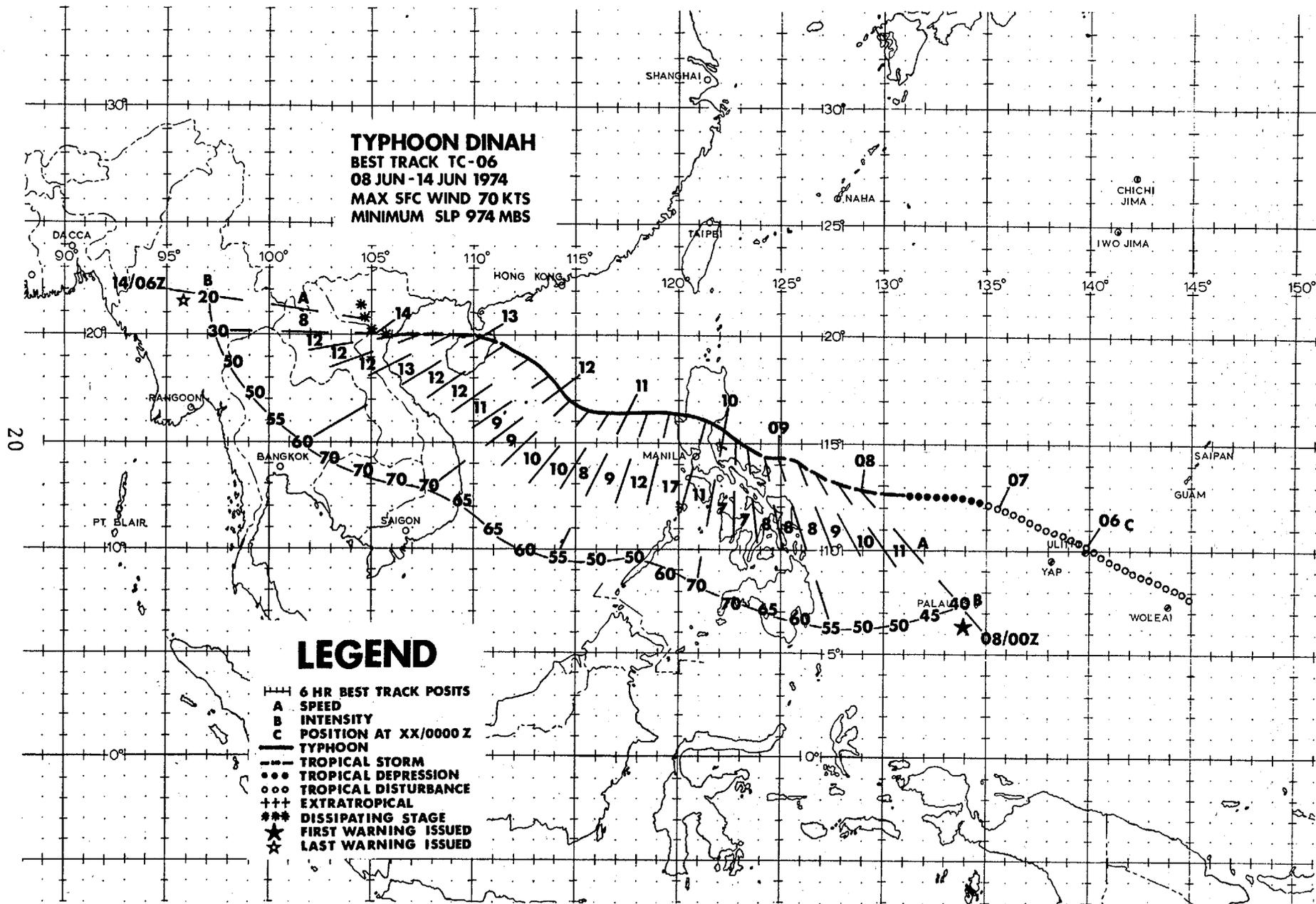
In advance of a front moving southeastward from Japan, Carla began to accelerate northeastward on the 6th and fill in central pressure. By 1200Z, synoptic and satellite data indicated the remains of Carla had merged with the frontal zone as a weak low near 36N and 158E.



FIGURE 4-1. Carla prior to attaining tropical storm intensity 300nm southeast of Saipan, 1 May 1974, 2236Z. (DMSP imagery)



FIGURE 4-2. Carla achieving typhoon intensity 210nm northwest of Saipan, 5 May 1974, 0245Z. (DMSP imagery)



Dinah's incipient stages can be traced back to a weak circulation in the monsoon trough first noted on synoptic charts on 5 June in the west central Carolines. The system tracked west-northwestward passing just north of Ulithi atoll early on the 6th reaching tropical depression status the next day (Figure 4-3). As a strong subtropical ridge built westward, the depression crossed the Philippine Sea at a rapid pace up to 20 knots. On the 8th, it began to slow in forward speed and intensify about 200 nm east of Samar Island.

Following somewhat of a meandering course Dinah passed just north of Catanduanes Island on the 9th and veered temporarily to a northwest track in response to a short wave trough over the East China Sea. Aircraft reconnaissance indicated that Dinah had developed typhoon force winds in its northern semicircle during this period. An aircraft measurement shortly before landfall indicated a central pressure of 974 mb (10/0235Z) the lowest observed during the cyclone's lifetime. At landfall, the coastal town of Baler (15 nm south of the center) reported a minimum pressure of 979.8 mb and gusts to 46 knots while Casiguran 35 nm north of the center measured a gust to 47 knots (Figure 4-4).

Dinah cut across Luzon's mountainous terrain in less than 6 hours emerging north of the Lingayen Gulf near the town of San Fernando. Torrential rains (24 hour totals up to 19.4 inches at Virac and 15.4 inches at Baler) set off flash flooding and landslides in the island Republic claiming a toll of 73 dead and 33 missing. Estimates of damage caused by Dinah were approximately \$1 million.

Dinah assumed a westerly course after exiting Luzon regaining typhoon strength by midday on the 11th. Aircraft reconnaissance reported a central pressure of 978 mb (11/0855Z) within a broad center estimated to be 50 nm in diameter. The Japanese ship MATSUSHIMA MARU passed about 40 nm east of the center a few hours later (11/1200Z) reporting a minimum pressure of 980.8 mbs. Dinah's central pressure varied little thereafter, and its center remained broad until landfall on Hainan Island.

As a high pressure region over South China advanced into the East China Sea, Dinah shifted course for the Luichow peninsula on the 12th. Rebuilding pressures, however, blocked Dinah from crossing the South China coast. Following transit of northern Hainan Island, Dinah weakened to tropical storm strength and entered North Vietnam south of Haiphong quickly dissipating once inland.

While in the South China Sea, Dinah's circulation was extensive; radius of the area within the 1000 mb isobar was about 360 nm by the 11th. On this day, Pratas Island 150 nm north of the center reported sustained winds (10 min) of 30 knots (11/1200Z), and the Japanese ship NISSHO MARU 125 nm east of the center reported estimated winds of 45 knots. By the 12th, an unidentified ship caught 60 nm north of the center reported estimated winds of 45 knots (12/0000Z). Later that day, the Chinese meteorological station on the Paracel Islands 120 nm south of the center recorded sustained winds (10 min) of 45 knots. Strong gusty winds were also felt in Hong Kong on the 12th as the eye of Dinah passed some 250 to 200 nm south and southwest. Wagland Island in the Colony reported gusts up to 60 knots and the Royal Observatory gusts to 64 knots.

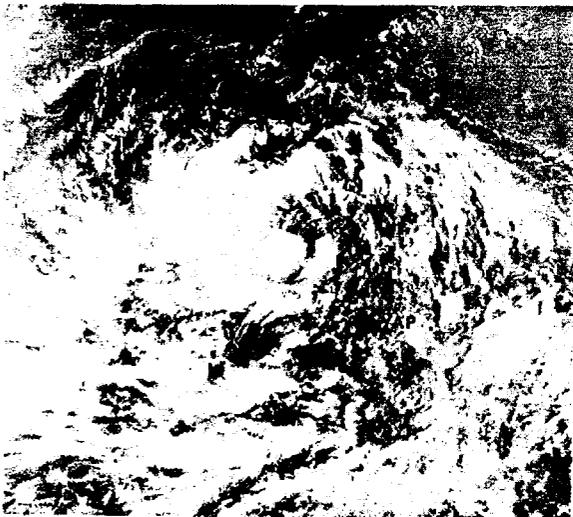


FIGURE 4-3. Formative stages of Dinah centered 200nm northwest of Yap, 6 June 1974, 2330Z. [DMSPI imagery]

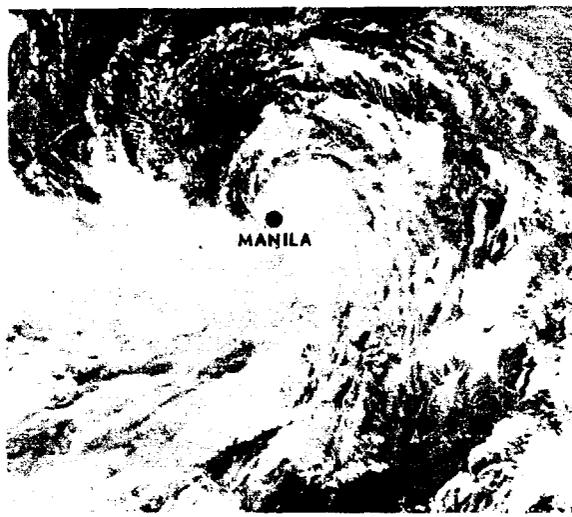
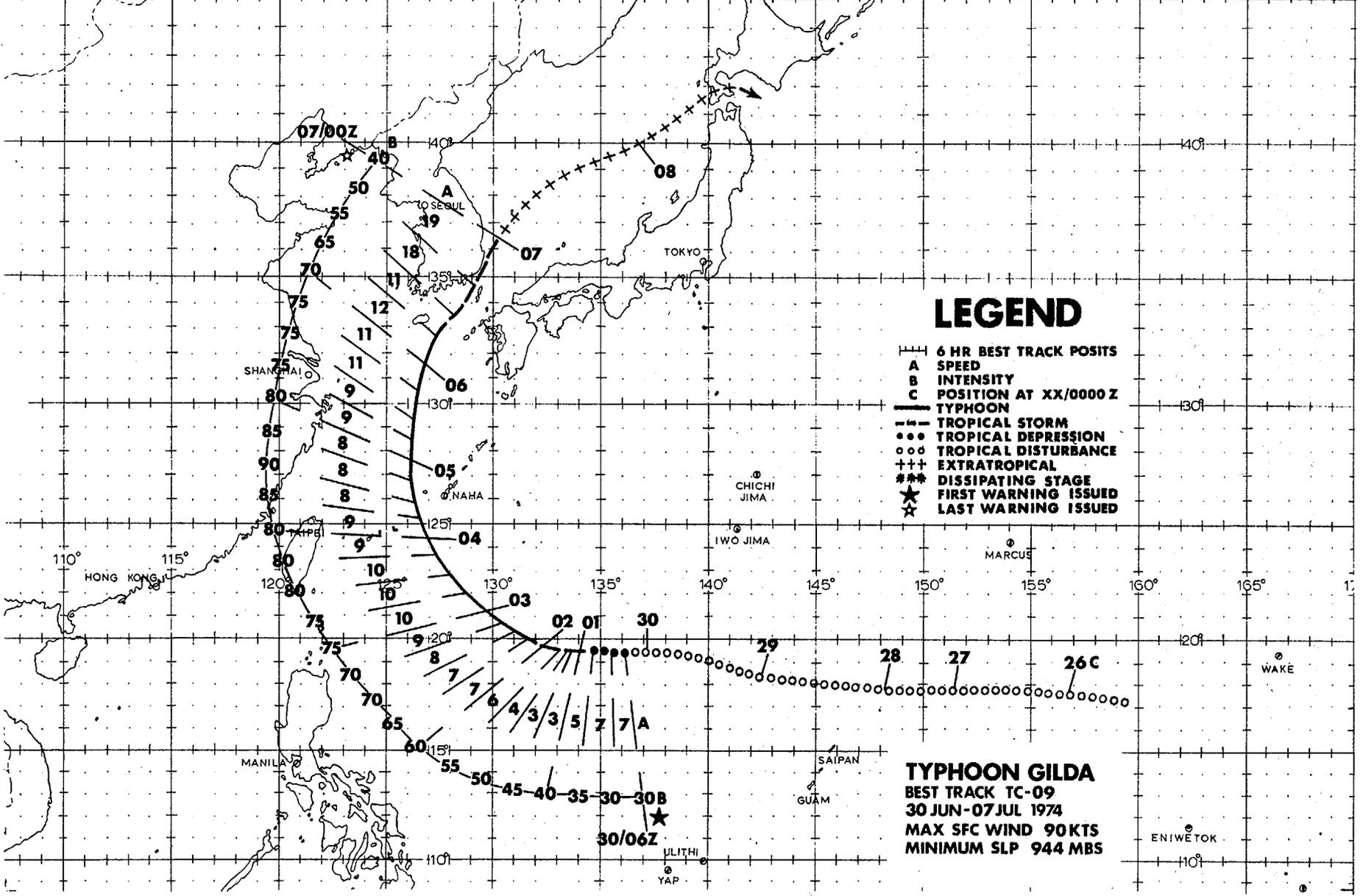


FIGURE 4-4. Typhoon Dinah a few hours from landfall on Luzon island near Baler, 10 June 1974, 0017Z. [DMSPI imagery]

110° 115° 120° 125° 130° 135° 140° 145° 150° 155° 160° 165° 17



### LEGEND

- 6 HR BEST TRACK POSITS
- A SPEED
- B INTENSITY
- C POSITION AT XX/0000 Z
- TYPHOON
- - - TROPICAL STORM
- TROPICAL DEPRESSION
- TROPICAL DISTURBANCE
- +++ EXTRATROPICAL
- \*\*\* DISSIPATING STAGE
- ★ FIRST WARNING ISSUED
- ★ LAST WARNING ISSUED

**TYPHOON GILDA**  
 BEST TRACK TC-09  
 30 JUN-07 JUL 1974  
 MAX SFC WIND 90KTS  
 MINIMUM SLP 944 MBS

22

The third typhoon of the season, Gilda, developed to typhoon strength 450 nm south-east of Okinawa on 2 July. Initial detection of the system was on 25 June about 400 nm north of Eniwetok as a weak circulation on the trailing edge of a surface trough which extended northeastward to the vicinity of Midway Island. The system tracked westward for five days displaying little marked development based on satellite data coverage. By the 29th, however, signs of increased organization became evident and, late the following day, Gilda's circulation had generated surface winds of tropical storm intensity.

Gilda began to move poleward on the 2nd and develop winds of typhoon strength as a stationary mid-tropospheric trough dominated eastern China. Early that day, the Japanese vessel SHINKYOKU MARU crossed southward just ahead of Gilda's path observing northwesterly winds of 45 knots and a pressure of 988.0 mb (02/0600Z).

The typhoon reached its peak intensity during the two-day period it approached the Ryukyu chain (Figure 4-5). Reconnaissance aircraft measured a 944 mb central pressure (04/1431Z) when the eye passed 70 nm southwest of Naha, Okinawa on the 4th. A peak gust of 85 knots was measured at the Naha Observatory (04/0840Z) during passage, while on Kume Jima a gust of 101 knots was registered several hours later (04/1550Z) when Gilda's eye passed 30 nm to the west.

Heavy rain and gusty winds from Gilda were responsible for almost a complete failure in Okinawa's electric power. Heavy rains (up to 10.8 inches at Naha) also accounted for numerous landslides and local

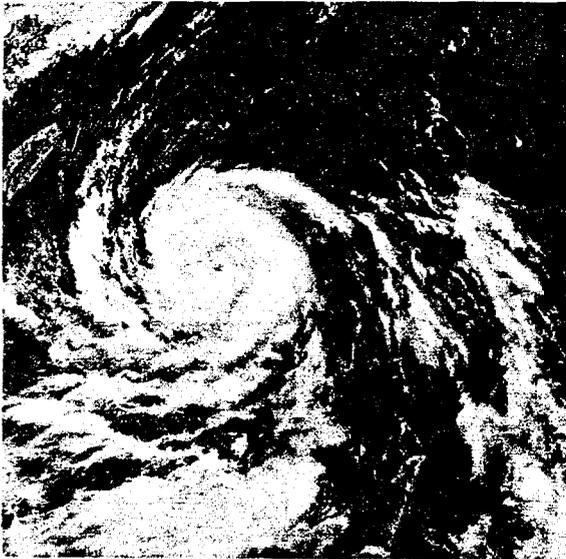


FIGURE 4-5. Typhoon Gilda near peak intensity 100nm southwest of Naha, Okinawa, 3 July 1974, 0227Z. (DMSP imagery)

flooding. One person was reported killed and several fishing vessels sunk. Crops including sugarcane, bananas, and vegetables suffered extensive damage.

As the typhoon entered the East China Sea, it tracked northward around the western periphery of the mid-tropospheric subtropical ridge. Diminishing in intensity while approaching Cheju Do Island early on the 6th (Figure 4-6), Gilda responded to increasing upper level southwesterly flow over Manchuria, and began to accelerate. By the 7th, Gilda's circulation was in the Sea of Japan as an extratropical system heading toward southern Hokkaido.

Gilda brought torrential rains to Korea during passage near the southeast coast with total rainfall amounts exceeding 10 inches near coastal areas. The highest amount of 10.8 inches was measured at Kwangyang. The heavy rains caused flash flooding and landslides which completely or partially destroyed over 700 dwellings and left over 6000 homeless. Total damage loss was estimated at \$2.8 million, with casualties of 21 dead and 11 missing.

Meanwhile, Gilda's circulation activated a stationary front over western and central Japan producing torrential rains over a widespread area. The coastal town of Owase on the Kii peninsula reported an extreme 24 hour total of 16.5 inches. Newspaper reports indicated Gilda caused an estimated \$1.2 billion in property damage, including tens of thousands of flooded homes, damaged roads, and washed out railway lines and bridges. The toll in Japan from landslides and flash flooding accounted for 106 dead and 15 missing.

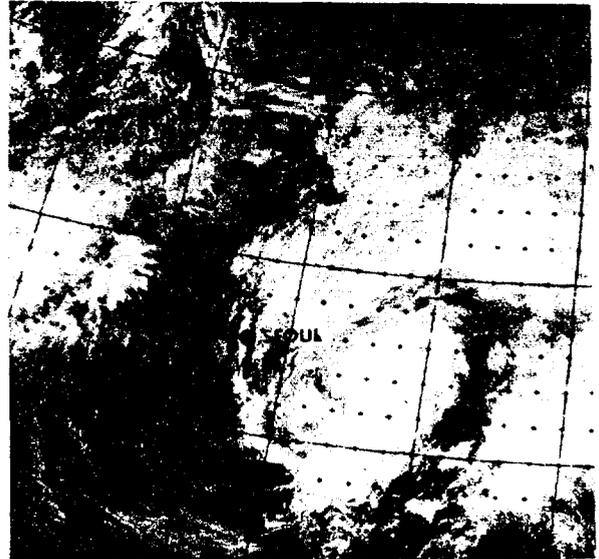
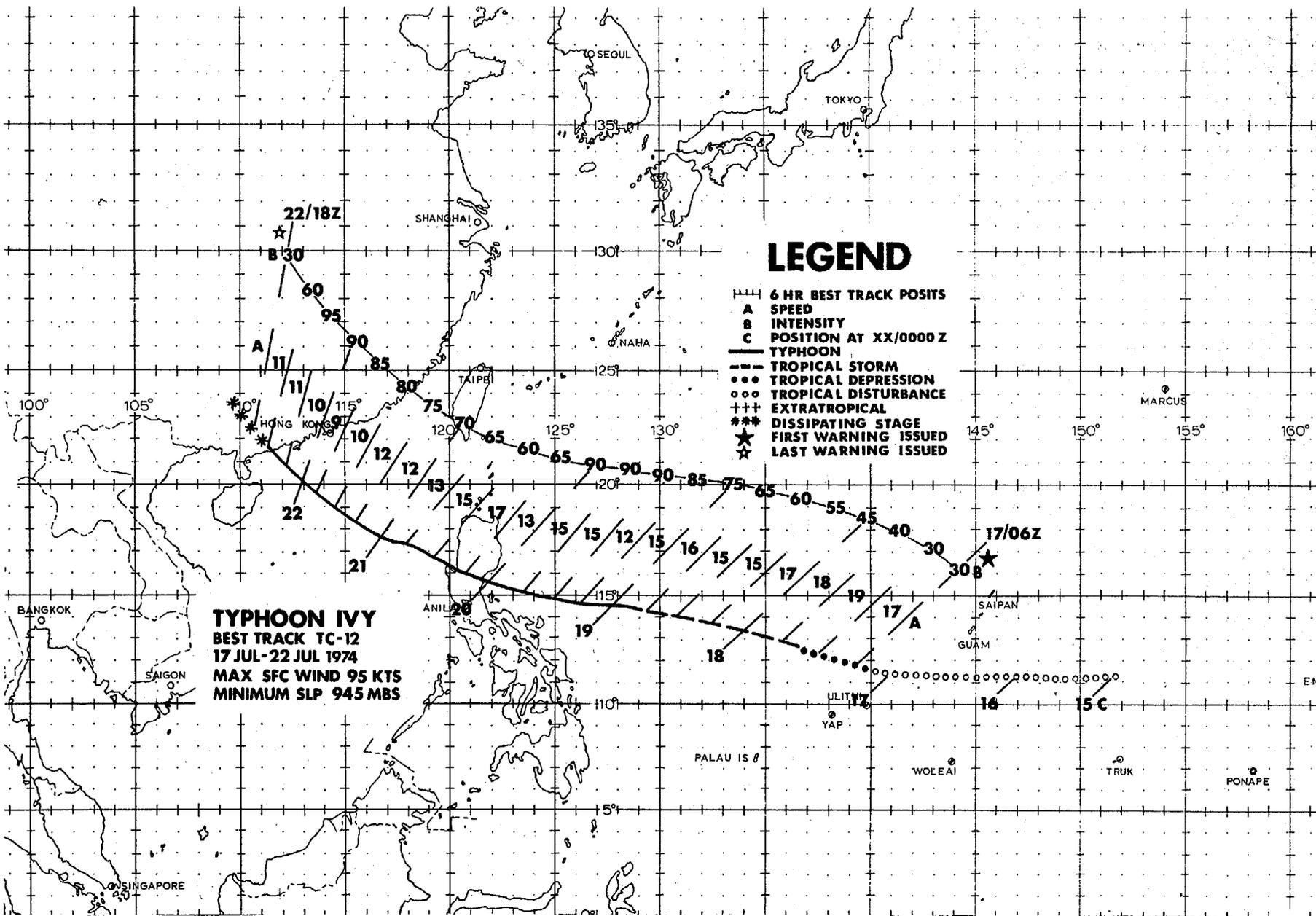


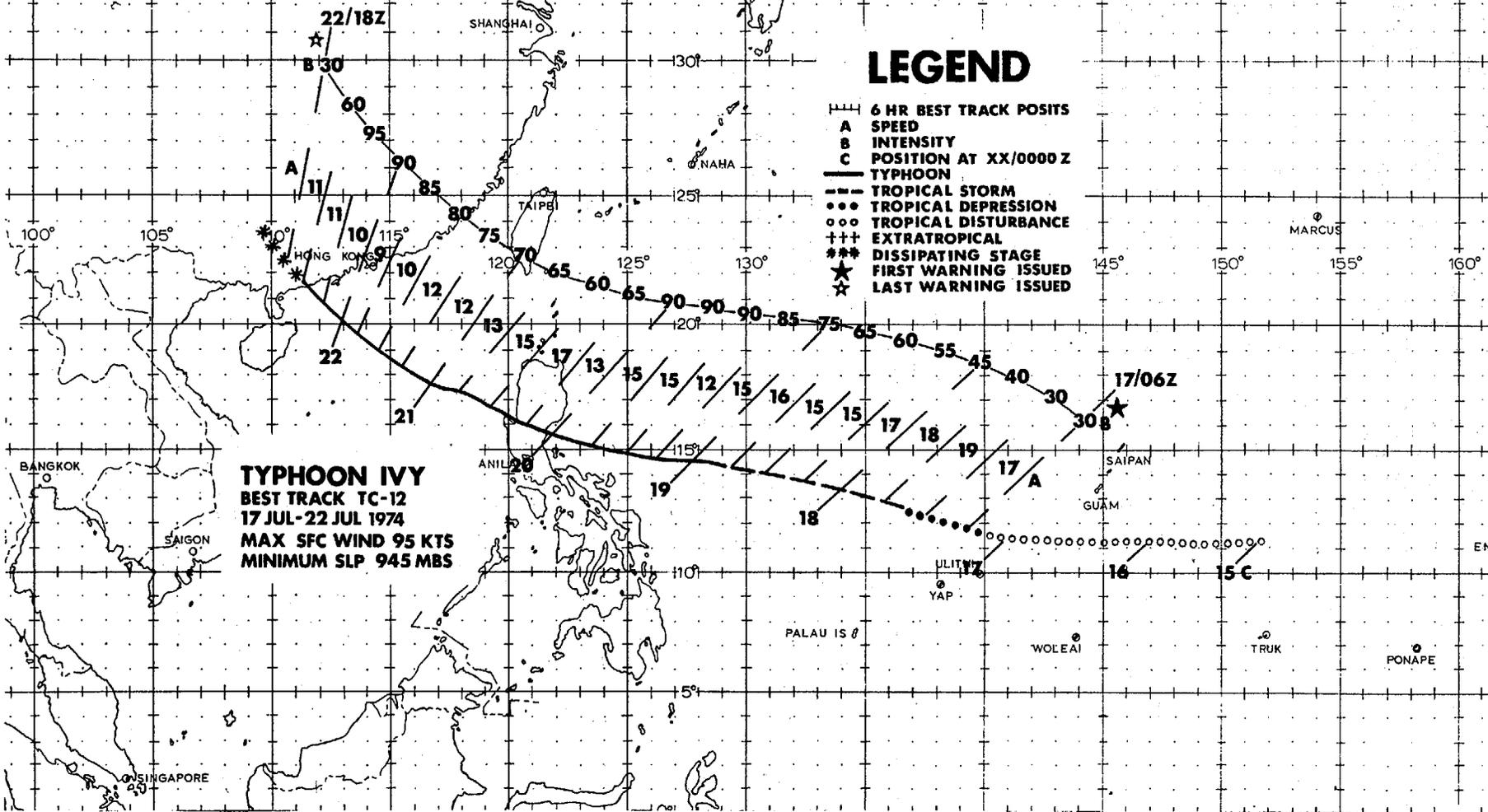
FIGURE 4-6. Typhoon Gilda acquiring extratropical characteristics in the Sea of Japan 180nm southeast of Seoul, Korea 7 July 1974, 0254Z. (DMSP imagery)



**TYPHOON IVY**  
**BEST TRACK TC-12**  
**17 JUL-22 JUL 1974**  
**MAX SFC WIND 95 KTS**  
**MINIMUM SLP 945 MBS**

**LEGEND**

- ||| 6 HR BEST TRACK POSITS
- A SPEED
- B INTENSITY
- C POSITION AT XX/0000 Z
- TYPHOON
- - - TROPICAL STORM
- TROPICAL DEPRESSION
- ○ ○ TROPICAL DISTURBANCE
- +++ EXTRATROPICAL
- \*\*\* DISSIPATING STAGE
- ★ FIRST WARNING ISSUED
- ★ LAST WARNING ISSUED



The 0000Z synoptic chart for 17 July depicted multiple tropical cyclones over the Philippine Sea. Harriet was weakening to depression status east of Okinawa as Jean developed storm force winds east of the Luzon Straits. Meanwhile, evidence of a strengthening depression was noted in the monsoon trough 250 nm west-southwest of Guam. The last system, destined to become Ivy, intensified to tropical storm force the following day (18th) (Figure 4-7). Within two days, Ivy struck Luzon as a well developed typhoon.

Ivy's track across the Philippine Sea was affected by a strong subtropical ridge resulting in movement speeds of 15-18 knots. Once Tropical Storm Jean crossed into the East China Sea, the subtropical ridge built westward and prevented Typhoon Ivy from taking a climatological northwesterly track. Instead, the typhoon was forced to maintain a westward course near the 15th parallel. The typhoon began to deepen rapidly on the 18th. Its central pressure dropped 32 mb in 20 hours, reaching a minimum of 945 mb (19/1037Z) about 15 hours prior to landfall. Filling slightly, Ivy struck the Luzon coast south of Baler with sustained winds of 90 knots early on the 20th. A peak gust of 97 knots from the east and a minimum pressure of 973 mb was reported at the Baler meteorological station during eye passage.

The severity of turbulence associated with Ivy prior to landfall on Luzon was readily attested to by an aircraft reconnaissance crew late on the 19th. During penetration of the wall cloud, turbulence was sufficient to flame out one of the WC-130's four engines. Fortunately, engine restart was accomplished by the crew while orbiting in the eye.

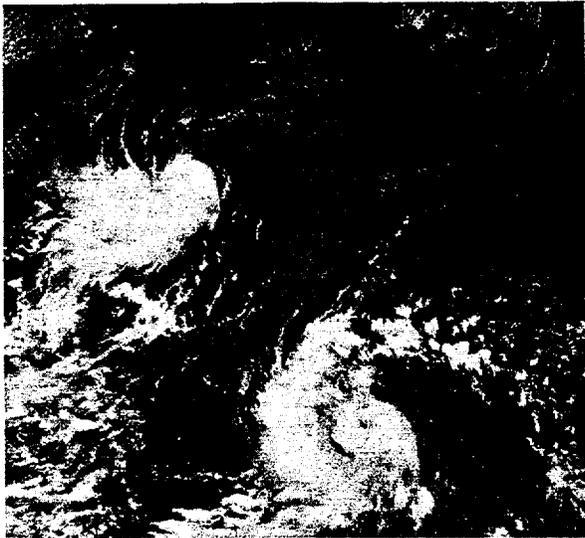


FIGURE 4-7. Tropical Storm Ivy about 450 nm east of Samar Island. Tropical Storm Jean is seen approaching Taiwan, 18 July 1974, 0253Z. (DMSP imagery)

After crossing central Luzon, Ivy emerged into the South China Sea from the Lingayen Gulf quickly regaining typhoon strength lost during transit over the mountainous terrain. In response to a mid-tropospheric trough positioned just east of the Tibetan Plateau, Ivy began to take a more northward course gradually slowing in forward speed and reintensifying as it approached South China (Figure 4-8). Estimates based on satellite data indicated that prior to landfall (just east of the Luichow peninsula on the 22nd) maximum sustained winds near the center were probably in the 85-95 knot range.

The circulation of Ivy caused gale force gusts at Hong Kong as she passed 150 nm south of the Colony. Peak gusts of 63 knots and 55 knots were recorded on the exposed islands of Cheung Chau and Waglan Island, respectively. Maximum 24-hour rainfall was relatively light at the Royal Observatory with only 1.4 inches recorded on the 22nd. Ivy's circulation quickly lost identity after moving inland midway through the 22nd and the system disappeared from the surface analysis 24 hours later.

In the Philippines, the typhoon's casualty aftermath mounted to 66 persons with 46 of these listed as missing. Hardest hit by Ivy was Baler, a town of 15,000, in which newspaper reports indicated 50% of the houses were leveled. Also in the Polillo Island group in Lamon Bay, 42 fishermen were reported lost following Ivy's passage. Estimates of dollar damage to structures, crops, and livestock in Luzon were placed at \$2 million.

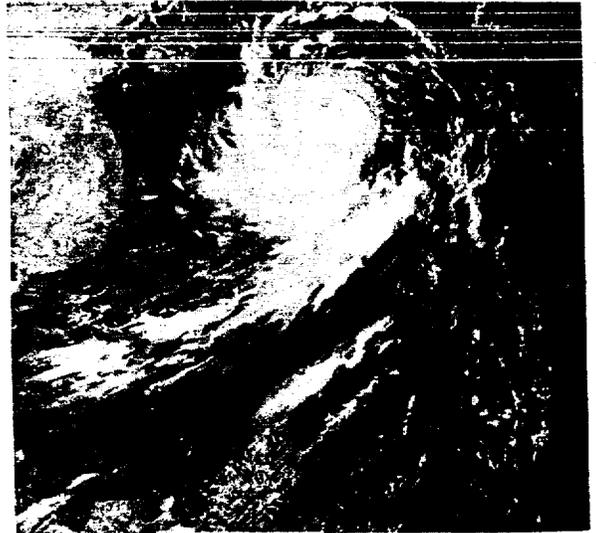
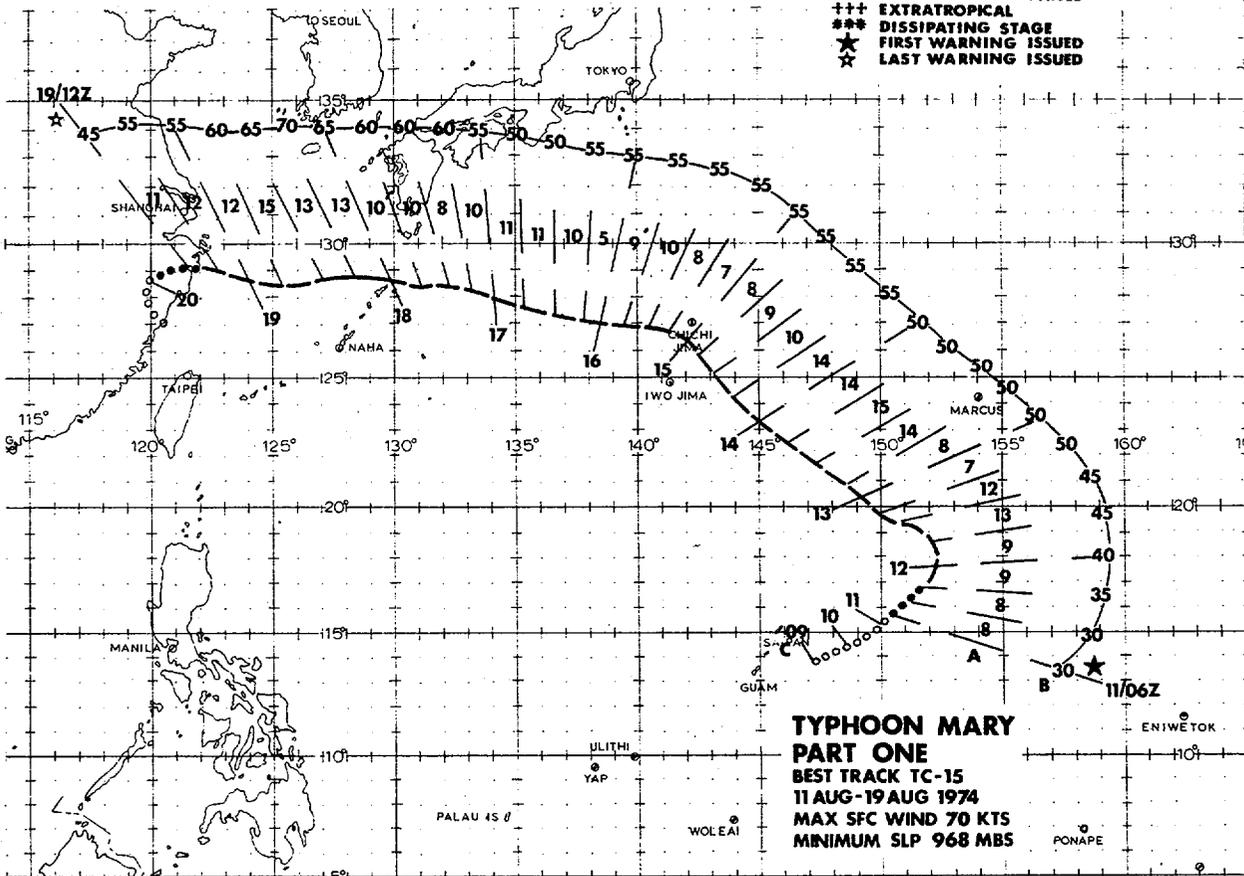
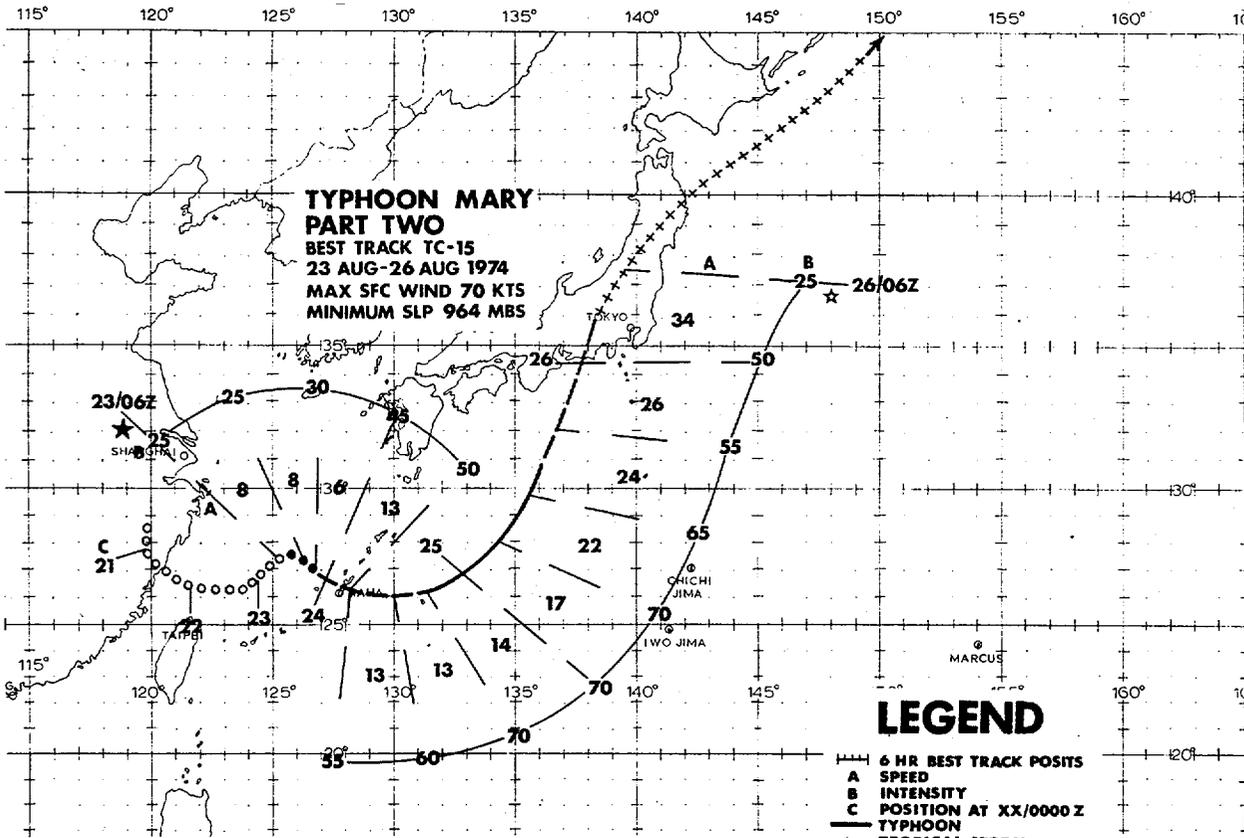


FIGURE 4-8. Typhoon Ivy in the South China Sea 250 nm south of Hong Kong, 21 July 1974, 0339Z. (DMSP imagery)



From its early stages east of the Marianas, to final dissipation over Japan, Mary's behavior was atypical of a tropical cyclone. Mary's circulation during the early stages was marked by maximum wind bands removed from the center by several hundred miles. In addition, the storm's circulation reached enormous proportions, dominating the weather events over the entire Philippine Sea for several days. The longest lived tropical cyclone of the season, Mary persisted for 15 days with 2 1/2 of these days spent inland from the East China coast. Toward the end of its lifetime, Mary culminated its unusual behavior by defying climatology, leaving the East China coast on an easterly heading, and regenerating to typhoon strength.

First identified as a weak circulation on synoptic surface charts on 9 August, Mary developed to depression status by the 11th in the monsoon trough some 250 nm east of Saipan. It is significant that during this period surface pressure falls to 5 mb below normal were occurring along the trough across the Philippine Sea. As a result, the monsoon westerlies began to intensify producing a narrow belt of winds averaging 25-30 knots feeding into the depression. By the 11th, satellite data revealed a band of cloudiness extending from the Philippine archipelago to the eastern Carolines in response to the strengthening monsoon flow (Figure 4-9).

Initially moving northeastward, Mary's circulation began to generate winds of tropical storm force late on the 11th. Thereafter, the storm shifted to a northwest course abruptly accelerating in forward speed to 14 knots on the 13th. Mary's circulation was characterized during this period by the existence of maximum wind bands far removed from the low pressure center. Reconnaissance aircraft reports on the 11th and 12th indicated that the center was becoming increasingly separated from the associated convective cloudiness. By the 13th, the center was 200 nm from the nearest convective band. The dimensions of the anomalous structure was readily apparent in satellite views on the 14th (Figure 4-10). By this time a band of convective cloudiness spiraling around the center in a broad arc was evident--a pattern quite similar to an extratropical low.

As Mary's center took a poleward component on the 12th and 13th, the associated convective band leading into the circulation, and trailing some 500 nm south and southwest of the center, drifted over Guam. Winds gusting to gale force occurred over a period of 3 days starting early on the 11th. Peak gusts from the southwest reached 57 knots on the 12th (0950Z) and the 13th (2012Z) at Andersen AFB. Rainfall amounts of 7.25 inches in 24 hours were recorded at Andersen AFB between the 11th and 12th as the island lay beneath Mary's outer convective band. This extreme 24-hour rainfall amount exceeds all records for August on Guam.

The persistent strong southwesterly winds were responsible for significant damage to marine interests on Guam. The CARIBIA, a 40,000 ton passenger liner, being towed to Taiwan for salvage, broke loose from her tug at the entrance to Apra Harbor, ran aground on the breakwater, and later sank. An estimated \$3.3 million loss was associated with the sinking of this vessel. The heavy seas also took their toll on small craft (which are normally protected on the leeward side of the island in the trades) as many broke their moorings and went aground. One yacht valued at \$250,000 was included among the lost vessels. Two lives were lost due to drowning and damage estimates amounted to over \$542,000 in the Territory.

On Rota, Tinian, and Saipan crops were especially hard hit by the strong winds and torrential rains. On Tinian, the vessel MV MARIANAS broke from its moorings and went aground. In the northern Marianas, major damage was sustained mostly to copra and banana trees.

As Mary neared the Volcano Islands, the area of surface pressure of 1000 mb or less was exceedingly large--stretching at its greatest diameter some 1200 nm in a north-northeast/south-southwest orientation and 850 nm in an east-west direction. The unusually low pressures in the trough trailing Mary southwestward into the Philippine Sea caused development of a tropical depression some 350 nm north-northwest of Yap. Moving eastward in Mary's circulation, the depression apparently interacted with the tropical storm midday of the 14th when it approached within 700 nm of Mary's center, Mary's forward motion began to slow and the storm abruptly shifted to a westerly course early on the 15th. Meanwhile the strong tropical depression accelerated in forward speed around Mary's southeastern side and dissipated due to the excessive vertical shear.

Late on the 14th the center of Mary's broad eye crossed 35 nm south of Chichi Jima. The island's meteorological station reported a minimum pressure of 977.1 mb (14/2240Z)--only slightly higher than an aircraft reconnaissance central pressure observation a few hours later (972 mb at 15/0217Z).

On the 15th, a second depression was spawned 300 nm east of Luzon in the low pressure envelope trailing Mary. Accelerating eastward in Mary's circulation, Nadine developed to tropical storm force late on that day. Once Nadine was within 700 nm of Mary's center late on the 15th a second interaction occurred, resulting in Mary's continued westward movement (Figure 4-11).

A long wave mid-tropospheric trough west of Lake Baykal began to deepen on the 16th resulting in a rapid building of a ridge downstream over Manchuria with a high pressure cell centered near Port Arthur. This abnormally strong high blocked any further poleward movement and caused Mary to maintain an anomalous westward course until landfall

on the East China coast on the 19th.

During this westward movement, satellite data indicated that Mary developed a more tropical appearance as a canopy of cloudiness covered the cyclone's center. Mary intensified slightly, and for a short period on the 18th winds reached typhoon force as the storm cut through the Ryukyu chain (Figure 4-12). Naze city on Amami-O-Shima reported the lowest pressure (979.6 mb at 18/0240Z) as Mary's center tracked 20 nm to the north. The highest winds in the Ryukyus were measured at Yakushima Island which recorded a peak gust of 90 knots at 18/0040Z. As the typhoon's precipitation swept over southern Kyushu, heavy rainfall amounts varying between 8 and 11 inches were reported in the mountainous areas. Miyakonjo on Kyushu measured the greatest 24 hour total of 6.4 inches during the 18th.

Moving inland on the China coast about 100 nm south of Shanghai late on the 19th, Mary was blocked from moving into the mountainous interior by a high cell over central China. As a result, Mary stalled just inland as a deep depression for several days. Meanwhile, the mid-tropospheric ridge over Manchuria began to break down rapidly as a developing mid-tropospheric trough east of Lake Baykal begin to deepen equatorwards.

By the 22nd, the increasing westerly flow west of and over the Gulf of Chihli forced the depression back out over the open waters of the East China Sea.

Regenerating to minimum storm strength on the 23rd, Mary passed over Okinawa as a "back door" storm early on the 24th increasing in forward speed to 13 knots during crossing. The meteorological station at Kadena Air Base registered a minimum pressure of 981 mb (24/0105Z) and a peak gust from the northwest at 41 knots. Center passage was estimated 18 nm to the north of Kadena. At the Naha Observatory a peak gust of 58 knots (24/0330Z) was recorded. Later in the day, Mary passed just north of Minami Daito Jima as the storm achieved typhoon intensity. The

Japanese weather station on the island experienced a peak gust of 90 knots (24/1707Z) and a minimum pressure of 969.3 mb (24/1704Z).

The development of a low within a mid-tropospheric trough over Korea began to draw Mary on a northward course late on the 24th. Due to the tightening gradient over Japan created by this deepening trough and a subtropical ridge cell positioned east of Honshu, Mary accelerated north-northeastward reaching a forward speed of 26 knots prior to striking Honshu near Hamamatsu on the 26th.

Mary briefly maintained typhoon status on the 25th, although the cyclone's winds dropped to storm strength prior to landfall on Honshu. Further evidence of Mary's rejuvenation came from aircraft reconnaissance late on the 24th observing a 15 mb drop in 24 hrs to 964 mb (24/2141Z). Several hours later the British vessel W. C. VAN HORNE was caught near the eye of the typhoon while crossing 30 nm east of the center. Winds of 70 knots from the south and a pressure of 981.8 mb were reported from this vessel at 25/0600Z. Crossing the Japanese coastline near Hamamatsu, the meteorological station indicated Mary's central pressure had risen to 986.2 mb (26/0030Z). Thirty minutes prior to center passage a peak gust of 63 knots was recorded at the station. Elsewhere along the coast, Omaezaki reported a southerly gust of 69 knots (26/0050Z).

Merging with a frontal system over Japan, Mary became extratropical moving inland over Honshu early on the 26th. Heavy rains spread over the north central region of the island with the greatest 24 hour amount of 8.98 inches occurring at Nikko. On the southern coast, Shizuoka City recorded a 24 hour total of 6 inches.

Only one casualty occurred in the Japanese islands as a result of Mary; however, strong winds associated with Mary over the Sea of Japan were responsible for capsizing a fishing trawler off Cape Amasaki. Of a crew of eleven, only one was rescued.

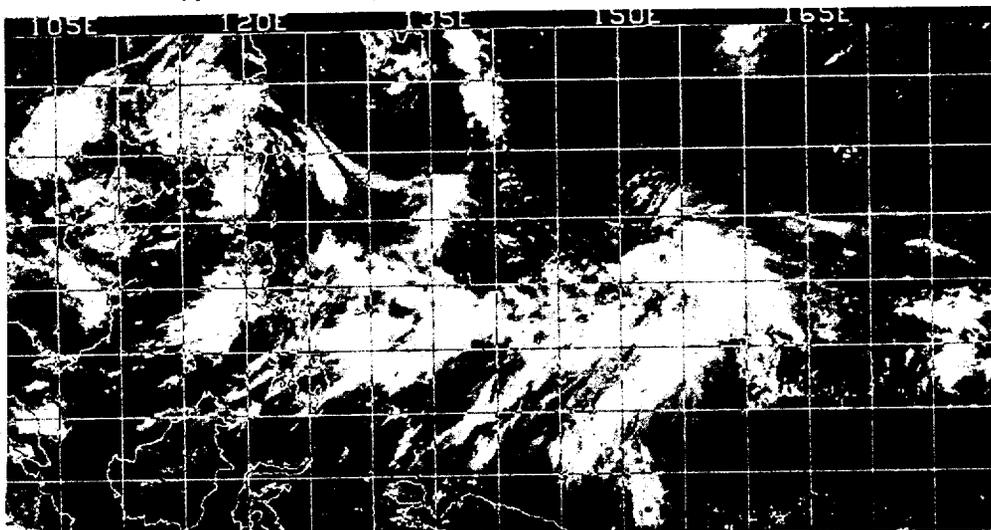


FIGURE 4-9. NOAA-2 satellite mosaic for 11 August 1974 showing cloud band associated with southwest monsoon extending from the Philippines to Mary developing east of the Marianas.



FIGURE 4-10. Tropical Storm Mary appearing as an extratropical system centered 220 nm southeast of Iwo Jima, 14 August 1974, 0118Z. (DMSP imagery)

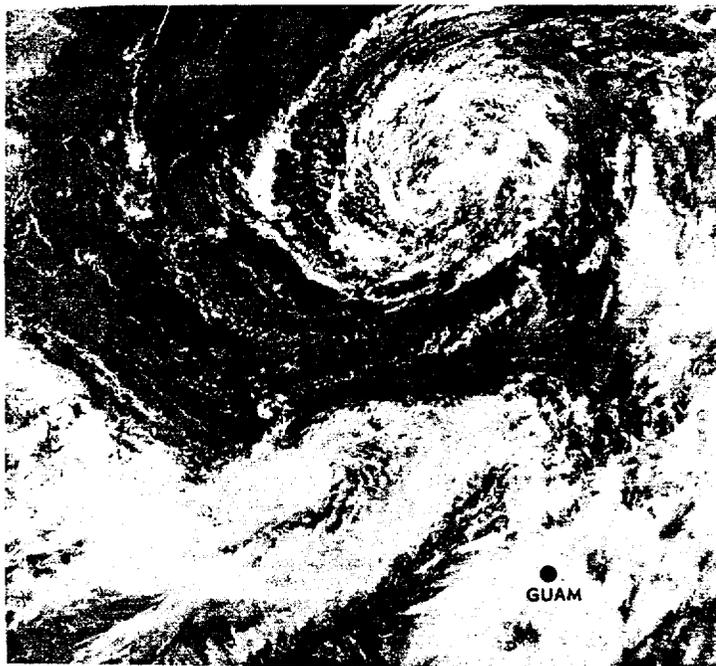


FIGURE 4-11. Tropical Storm Mary (top) centered 550 nm south of Tokyo. Tropical Storm Nadine (bottom) 700 nm further south in the Philippine Sea is centered 400 nm north of Yap Island, 16 August 1974, 0223Z. (DMSP imagery)

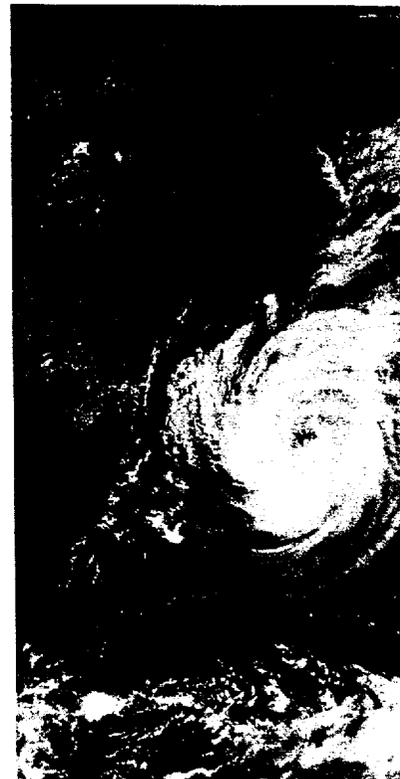
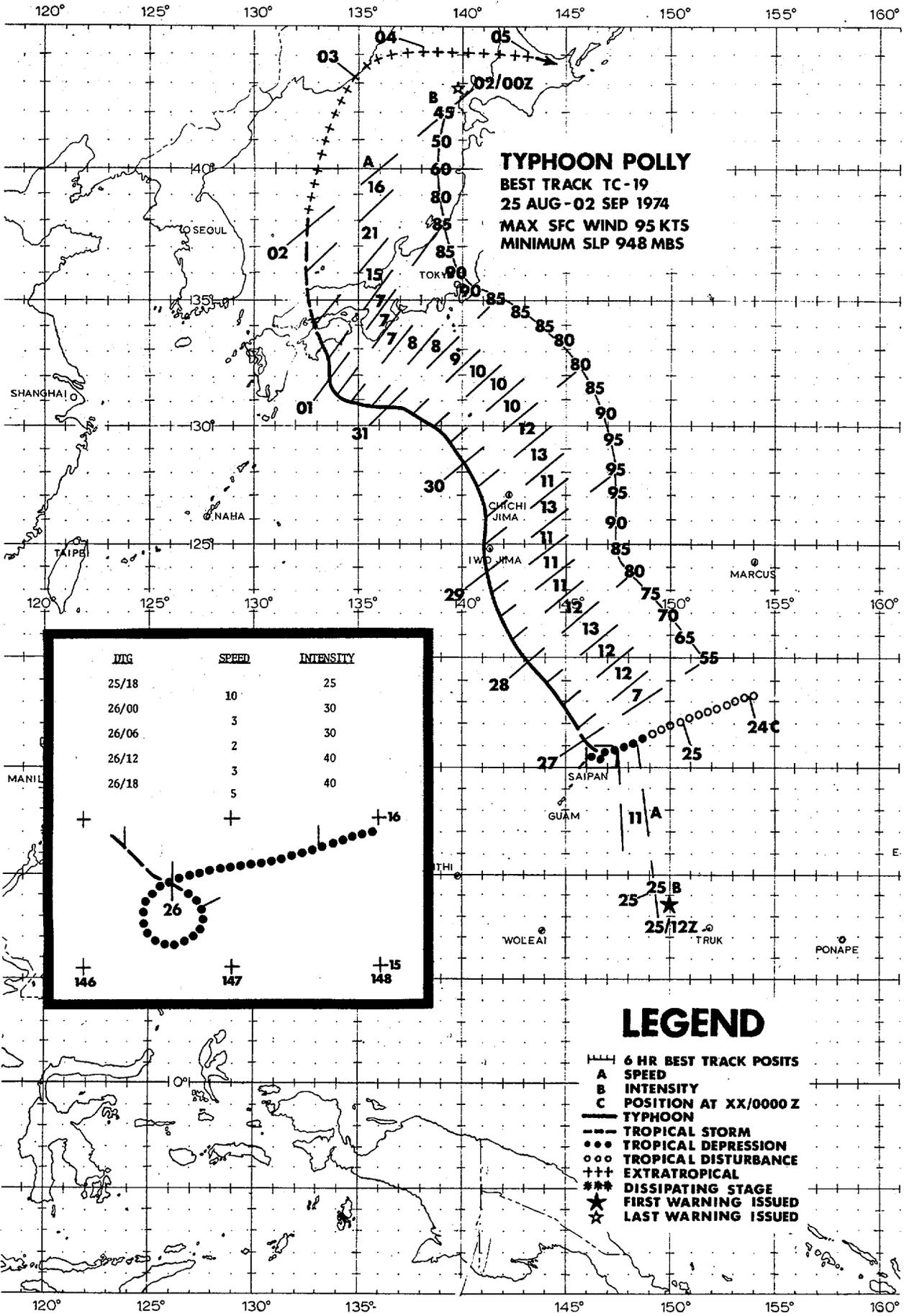


FIGURE 4-12. Mary after reaching typhoon force centered 100 nm north of Naha, Okinawa, 18 August 1974, 0327Z. (DMSP imagery)



POLLY

While Mary was accelerating toward central Honshu, satellite data revealed another disturbance, induced from an upper level low, was showing signs of development 400 nm east of the northern Marianas. Midday on the 26th, the circulation system intensified into Tropical Storm Polly about 40 nm northeast of Saipan. Development was rapid thereafter, as the storm's central pressure dropped 25 mbs in a period of a day after an aircraft reconnaissance reading of 989 mb late on 26th (2056Z).

Polly's movement in the central Marianas was erratic as the storm was impeded by a high pressure cell located to the southwest near Yap. By the 27th, however, the flow about a strong high east of Japan dominated, and Polly departed the "col" region between the two anticyclones increasing in forward speed to 12 knots.

Veering northward late on the 28th, the typhoon took aim on the Volcano Islands. Polly's central pressure continued to fall terminating at a minimum value of 948 mb 170 nm south of Iwo Jima. Twelve hours later the typhoon passed abeam of Iwo Jima and later on the 29th passed about 70 nm west of Chichi Jima. Iwo Jima reported peak gusts of 108 knots from the south (29/0705Z) after the eastern edge of Polly's 20 nm diameter eye passed the island. A minimum pressure of 951.5 mb was registered while in the eye. Later, Chichi Jima recorded a peak gust of 88 knots from the east-northeast (29/1240Z) and a minimum pressure of 989.8 mb (29/1900Z) during passage.

During Polly's advancement northward from the Marianas, Tropical Storm Rose generated east of Taiwan. Late on the 29th, Rose had moved to a position just north of Okinawa, and become quasistationary. The proximity of Tropical Storm Rose 700 nm west of Polly and a blocking high north and northeast of Polly resulted in the beginning of a Fujiwara interaction on the 30th. Polly began to turn northwest to westward during the next day and a half, as Rose sped around the south side of Polly's circulation (Figure 4-13).

With a long wave trough over eastern China, and Rose weakening significantly on Polly's eastern periphery, the typhoon veered abruptly on a northward track late on the 31st. Increasing in forward speed to 15 knots, Polly's center struck the Japanese islands of Shikoku and southwestern Honshu, emerging six hours later in the Sea of Japan late on the 1st. Diminishing to tropical storm force in the Sea of Japan, Polly continued a poleward movement crossing the Russian coast east of Vladivostak as an extratropical low on the 2nd.

As Polly's eye moved ashore on Shikoku, the Kochi City meteorological station 20 nm east of center, measured a minimum pressure of 976.3 mb (01/0920Z), and a peak gust from the east at 78 knots (01/0930Z). The Ashizuri station (20 nm west of the center), however, reported the lowest pressure on the coast--966.5 mb (01/0740Z). Murotomisaki

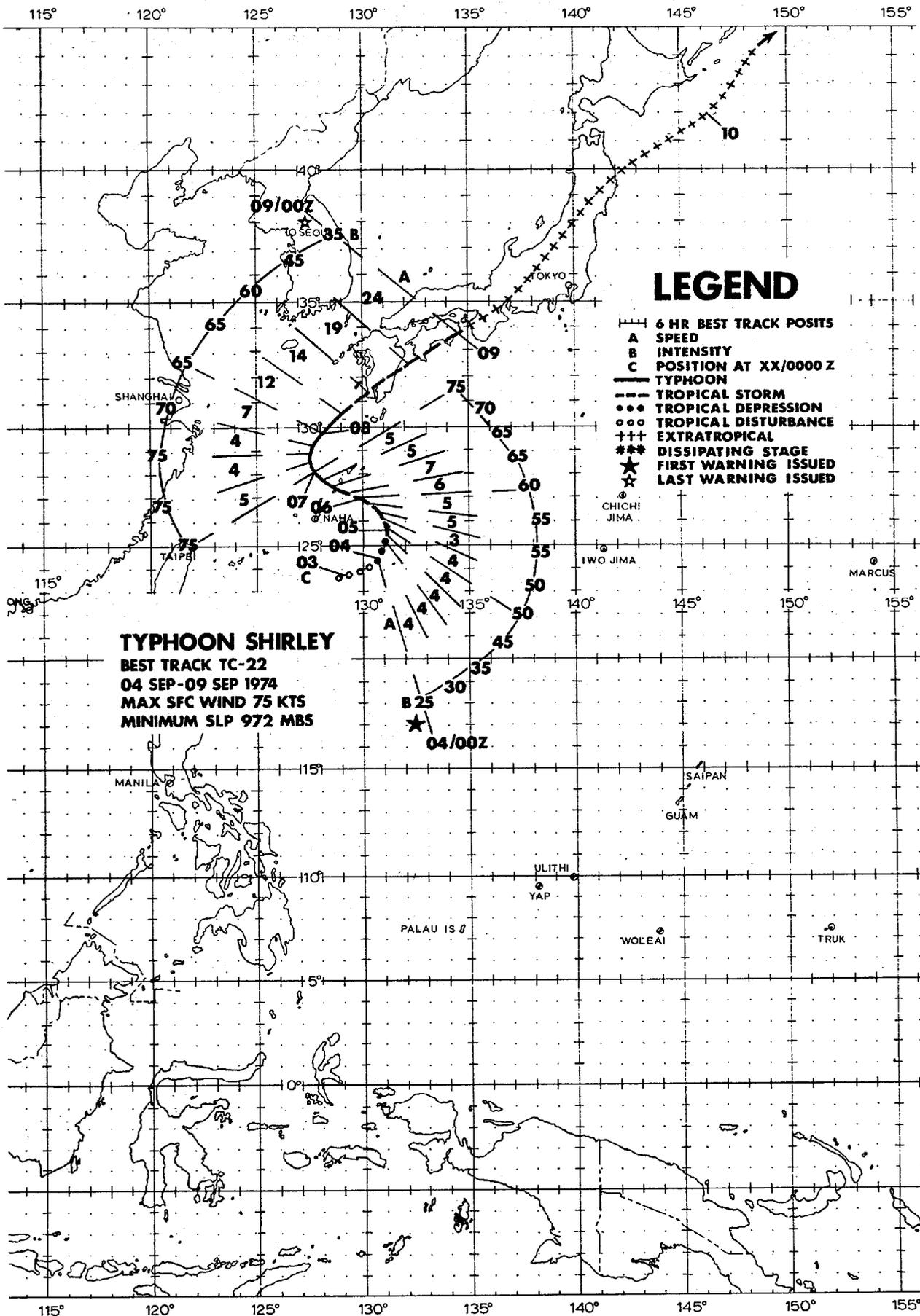
(elev. 745 ft, 70 nm northeast of the center) reported the highest gust--95 knots from the east (01/0310Z)--several hours before Polly's landfall. Maximum 24-hour rainfall measured on Shikoku Island due to Polly was 11.8 inches at the coastal station of Ashizuri.

During the typhoon's passage across Japan, Polly's circulation intensified a stationary front over east central Honshu bringing excessively heavy rains to the mountainous area west of the Kanto plain. Ogochi, Tokyo prefecture reported a total of 19.7 inches during the typhoon's passage while stations in Saitama and Yamanashi prefectures received totals as high as 19.5 inches and 14.4 inches respectively. These heavy rains set off one of the worst floods in Tokyo since World War II. The swollen Tama River washed over its embankment at Komae, Tokyo prefecture flooding many homes and causing 7600 inhabitants to be evacuated from their homes.

Elsewhere, electrical power was cut off in Kochi and Hiroshima in the path of Polly's center due to the high winds and landslides downing power lines. On the coast, two 10,000 ton freighters, berthed under construction at Urato Bay near Kochi, were washed out to sea when the water level went up some 9 feet. In the typhoon's wake, Polly left over 10,000 homes destroyed or inundated and a casualty toll of 45 injured and 9 dead or missing.



FIGURE 4-13. Typhoon Polly 250 nm south of Nagoya, Japan. Tropical Storm Rose appears further southwest of Polly centered 230 nm east of Naha, Okinawa. 30 August 1974, 2300Z. [DMSP imagery]



## SHIRLEY

As Polly transformed to an extratropical cyclone in the Sea of Japan, the monsoon trough reformed across the Philippine Sea from Taiwan to the Volcano Islands. On 3 September, a tropical cyclone was evident in synoptic and satellite data about 150 nm south of Okinawa. Drifting east and northeastward, Shirley was located about 60 nm south of Minami Daito Jima on the 4th when aircraft reconnaissance reports observed winds reaching storm force in the circulation's northern semicircle (Figure 4-14).

Located at the base of an upper level trough east of Korea, Shirley drifted slowly northward passing abeam of Minami Daito Jima early on the 5th. A minimum barometric reading of 986.0 mb was recorded at the island's weather station (05/0300Z). Peak gusts out of the south measured 54 knots (05/1300Z).

As the 500-mb trough over the Sea of Japan moved eastward on the 5th, rising heights north of Shirley caused the storm to turn westward. By the 6th, aircraft reconnaissance of Shirley indicated winds had reached typhoon force shortly before the storm's center passed over the island of Okinoerabu-Shima in the Ryukyu chain. (Figure 4-15) The barometer dipped to 977.4 mb on the island during center passage (06/1130Z), and, as winds shifted to the south-southeast, a peak gust of 82 knots was recorded (06/1310Z).

Shirley's circulation was rather small as gale force winds were limited to a radius of 75 nm of the center. To the north, Naze on Amami-O-Shima reported peak gusts to 43 knots (07/0150Z), while to the south the gust recorder at the Naha Observatory measured 44 knots (06/1530Z).

An approaching short wave over the

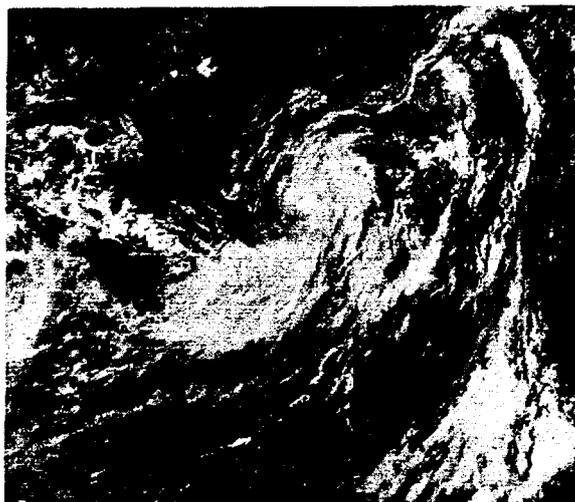


FIGURE 4-14. Formative stages of Shirley centered 180 nm southeast of Naha, Okinawa, 3 September 1974, 2329. [DMSP imagery]

Yellow Sea began to draw Shirley on a slow poleward drift on the 7th. As the base of this trough by-passed the typhoon to the north, Shirley accelerated in a northeasterly direction on the 8th, landing 12 hours later slightly below typhoon force on the coastline of Kyushu. Prior to landfall, the center passed directly over Kusagakishima (elevation 454 feet) which experienced a barometric reading of 982.4 mb (08/0800Z) and sustained 10-minute winds of 70 knots.

The coastal city of Makurazuki, 10 nm south of center crossing, received wind gusts to 90 knots (08/1050Z) from the south-southeast followed by a minimum pressure reading of 985.9 mb (08/1120Z).

Accelerating to forward speeds of 24 kts, Shirley quickly passed Kyushu and Shikoku and transformed into a weak extratropical low over the Kii peninsula on the 9th. Strong gusty winds occurred along the southern coast of Shikoku as Shirley's center passed by late on the 8th. South-southeasterly winds peaking near 42 knots and 70 knots were recorded at Ashizuri and Murotomisaki (station elevation 745 feet) respectively.

Torrential rains brought by Shirley totaled 6.2 inches in 24 hours at Nobeoka on the eastern coast of Kyushu, while Tokushima on the eastern coast of Shikoku reported 7.5 inches (24 hours) during passage. The heavy rains halted the Japanese National Railway services in parts of Kyushu and completely in Shikoku. Power blackouts were also wide spread in Kyushu due to gusty winds downing power lines.

Landslides and flash flooding as a result of the rains were responsible for the flooding of over 30,000 homes, and a casualty toll of 13 dead or missing.

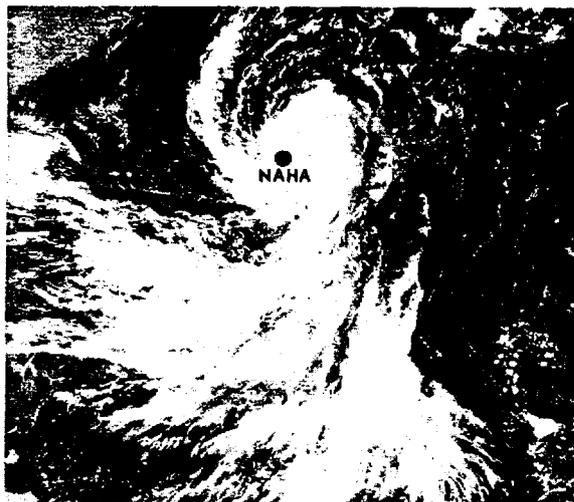
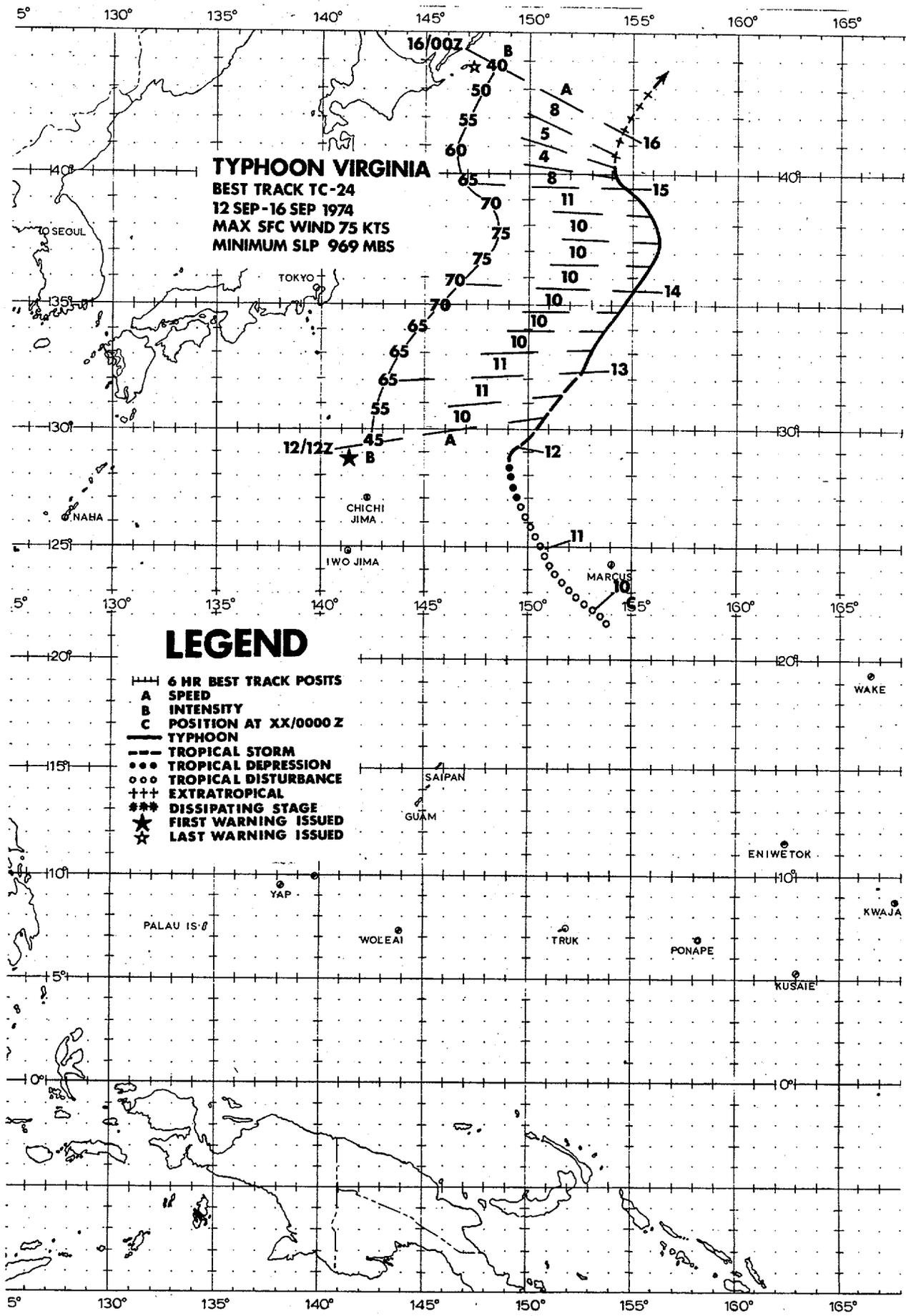


FIGURE 4-15. Shirley reaching typhoon strength 110 nm northeast of Naha, Okinawa, 6 September 1974, 0239Z. [DMSP imagery]



## VIRGINIA

Developing from a disturbance initiated by an upper tropospheric low, Virginia began to display increasing organization in satellite data early on the 11th, 200 nm west of Marcus Island. The circulation advanced northward, shifting to a northeast course and developed tropical storm force winds on the 12th. (Figure 4-16) By the time aircraft reconnaissance was conducted on Virginia late on the 13th, winds had increased to typhoon intensity. Flight level (700 mb) winds of 80 knots were measured in the southern semi-circle on penetration, while a central pressure of 980 mb was recorded within an eye 40 nm in diameter.

Virginia developed winds of typhoon strength at an unusual poleward latitude of 33°N. This was only the 6th tropical cyclone since 1945 to first achieve typhoon intensity north of the 30th parallel.

As a deepening 500 mb-low approached Manchuria from the Lake Baykal area on the 13th, the accompanying downstream ridging caused the westerlies north of Virginia to weaken and retreat poleward. As a result, the typhoon continued to track northeastward in a favorable vertical shear zone to maintain its intensity. Further aircraft reconnaissance of Virginia at 13/0730Z revealed the storm was still tropical in

character at the 37th parallel. The central pressure had dropped to 969 mb in an eye with a 700 mb temperature of 16C° (Figure 4-17). Maximum flight level (700 mb) winds of 90 knots were recorded just outside the eye in the wall cloud region.

By the 14th, a major trough was deepening over Manchuria causing a strong ridge to develop over the Kamchatka peninsula. By mid day, Virginia was blocked by an anomalous high pressure cell to the northeast, resulting in an unusual northwestward movement for a tropical cyclone located at such a northerly latitude (37N). Virginia's tropical lifetime ended shortly thereafter, as satellite data indicated weakening on the 15th and development of extratropical characteristics later in the day 400nm east of Hokkaido.

During the typhoon's northward track, numerous vessels in the shipping lanes were caught in its circulation and reported gale force winds. The strongest winds were experienced by a Netherlands ship (call sign PJSM) (40 knots) on the 13th and the PRESIDENT VAN BUREN (45 knots) on the 14th. The Japanese ship AKAISHI caught near the center on the 15th (0000Z) reported northeasterly winds of 57 knots and a barometer reading of 989.5 mb.

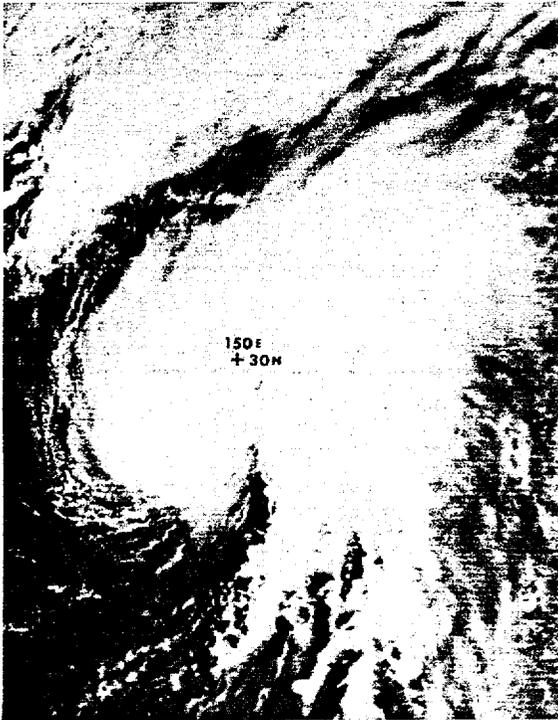


FIGURE 4-16. Tropical Storm Virginia 370 nm northwest of Marcus Island, 11 September 1974, 2243Z. (DMSP expanded imagery)

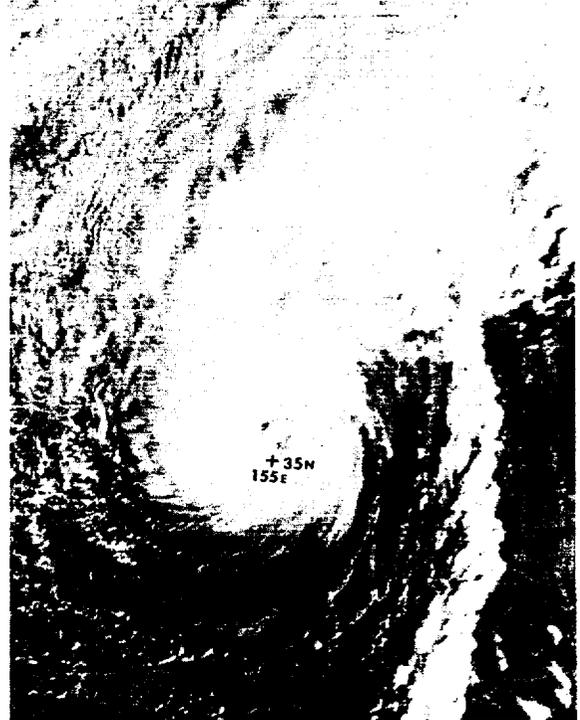
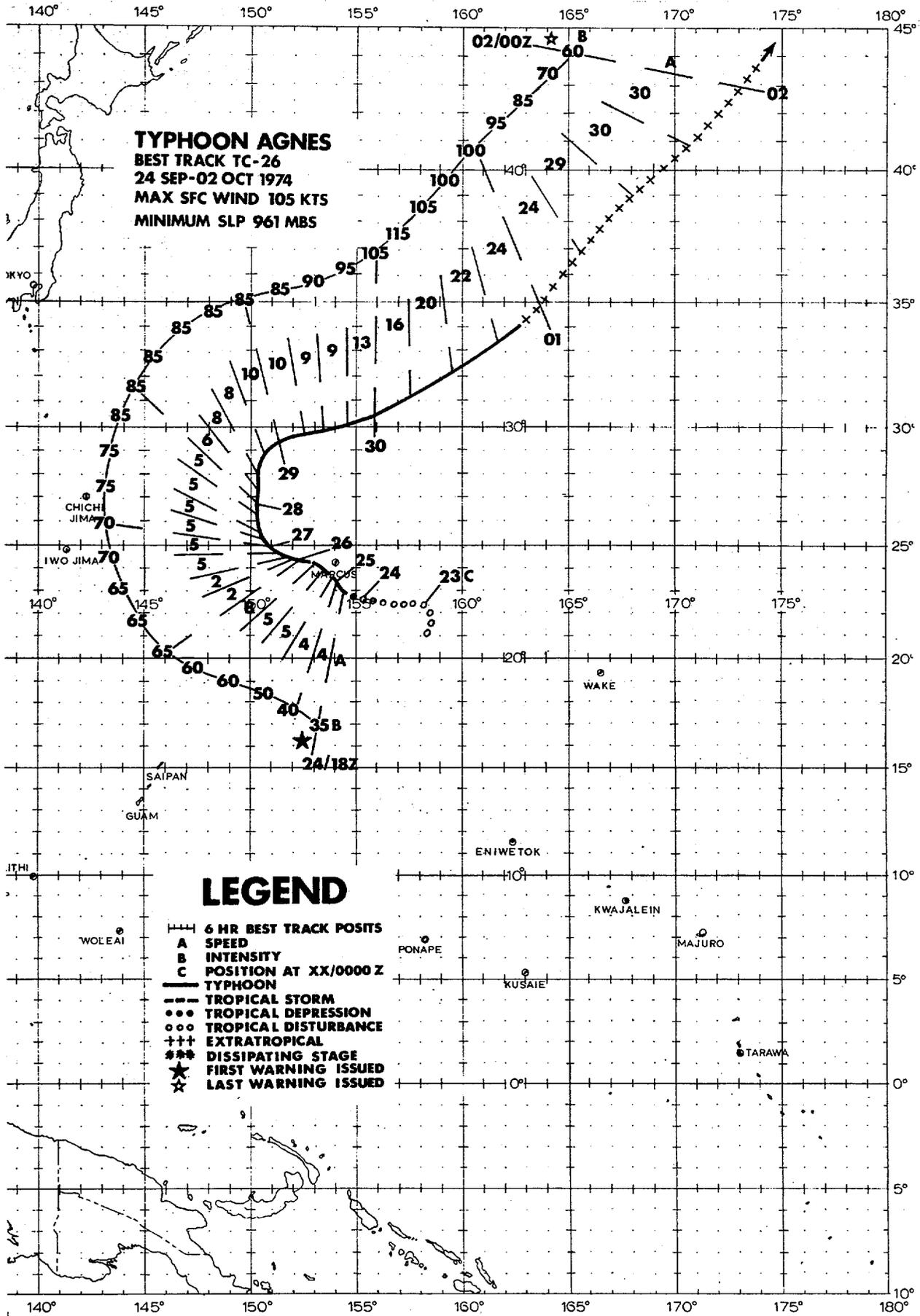


FIGURE 4-17. Typhoon Virginia near peak intensity after crossing the 35th parallel 750 nm east of Tokyo, 13 September 1974, 2207Z. (DMSP expanded imagery)



AGNES

Evolving from a disturbance initiated by an upper tropospheric low, Agnes developed to depression intensity about 150 nm southeast of Marcus Island on 24 September. Although weak, the flow about the subtropical ridge to the north of the depression kept the tropical cyclone on a slow westerly and later a west-northwesterly track for the next three days.

Indications from satellite data revealed that the circulation was intensifying rapidly on the 25th. Proof of this development occurred when the center of Agnes passed about 60 nm south of Marcus Island later that day. The Japanese meteorological station on the island experienced strong easterly gusts to 81 knots (25/1140Z) following a minimum barometer reading of 998.7 mb (25/0600Z) (Figure 4-18). Aircraft reconnaissance of Agnes the next day (26/1450Z) confirmed that the storm had gained typhoon force. Flight level (700 mb) winds of 70 knots and a central pressure of 984 mb were reported.

As a cell in the subtropical ridge west of Agnes weakened significantly on the 27th, the typhoon began to abruptly track northward. With upper level westerlies strengthening east of Japan, Agnes shifted to an east-northeast track 36 hours thereafter, and accelerated in forward speed early on the 29th (Figure 4-19).

Like typhoon Virginia, Agnes continued to deepen after recurvature. Reconnaissance aircraft observed the lowest central pressure of the typhoon's life (961 mb) on the 30th (0303Z). In addition, flight level (700 mb) winds of 135 knots were observed 40 nm from the center during exit from the eye. Forward speed of Agnes at this time had increased to 15 knots.

Over the Kuril Islands, a 500 mb low was tracking eastward accompanied by a deep trough. The amplification of strong southwesterly flow ahead of the trough caused Agnes to turn on a northeast course and accelerate to 30 knots by 1 October. Satellite data indicated Agnes acquired extratropical characteristics after crossing 35°N; however, the circulation remained intense as evidenced by aircraft flight level (700 mb) winds of 110 knots (01/0415Z). The strong extratropical low of Agnes continued to race poleward thereafter, finally merging with the advancing 500-mb low 300 nm south of Attu in the Aleutian chain on the 3rd.

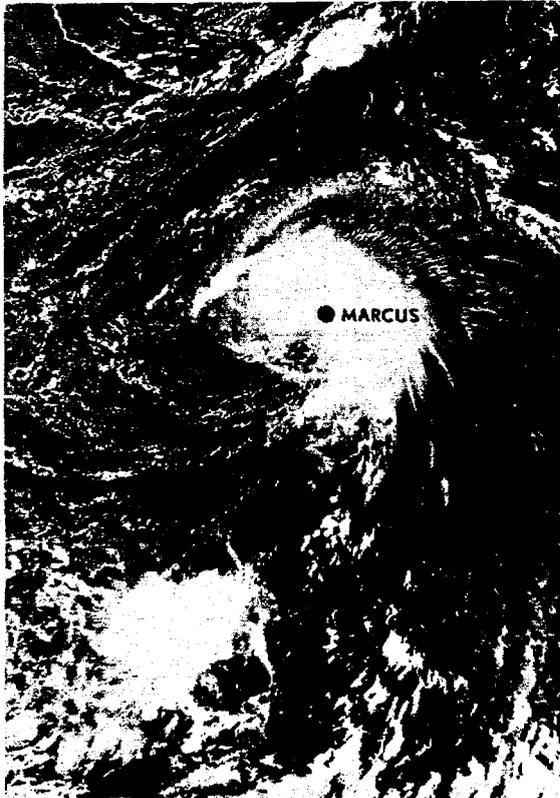


FIGURE 4-18. Agnes reaching typhoon strength 100 nm west of Marcus Island, 25 September 1974, 2151Z. (DMSP imagery)

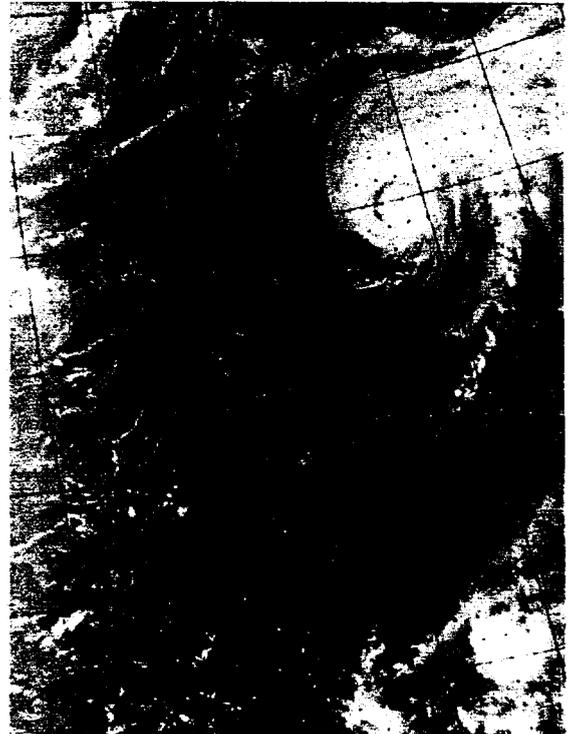
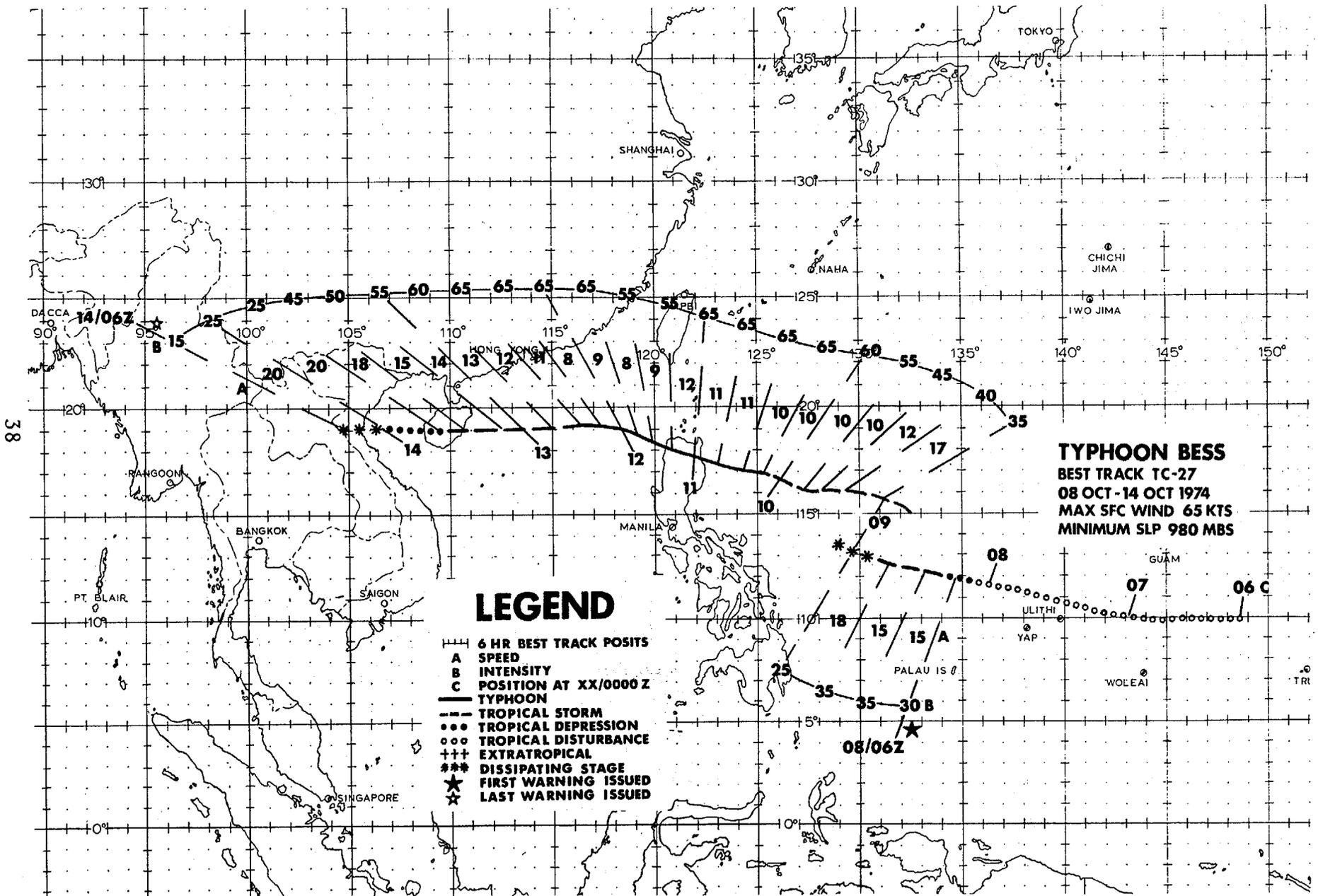


FIGURE 4-19. Moonlight visual of Typhoon Agnes after shift to an easterly track. Lights of Tokyo 750 nm to the northwest and other cities in Japan are visible in left-hand portion of data, 29 September 1974, 1119Z. (DMSP imagery)



### LEGEND

- 6 HR BEST TRACK POSITS
- A SPEED
- B INTENSITY
- C POSITION AT XX/0000 Z
- TYPHOON
- - - TROPICAL STORM
- TROPICAL DEPRESSION
- TROPICAL DISTURBANCE
- +++ EXTRATROPICAL
- \*\*\* DISSIPATING STAGE
- ★ FIRST WARNING ISSUED
- ☆ LAST WARNING ISSUED

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The circulation that eventually developed into Typhoon Bess was first noted on synoptic charts south of Guam on 7 October (0000Z). The circulation was accompanied by broad monsoonal flow, and, by the 9th, evidence from satellite data and aircraft reconnaissance indicated two centers had developed (Figure 4-20). The northern system dominated, while the center that had initially been tracked for several days dissipated. Due to a strong subtropical ridge, movement of the entire circulation complex up to this time had been rapid, with a forward speed of 18 knots. Due to a deepening trough in the westerlies over the East China Sea, the pressures north of the storm weakened, and Bess slowed to almost half its original speed.

Winds in the cyclone reached typhoon intensity early on the 10th as it approached northern Luzon. Approximately 24 hrs later, coastal crossing occurred about 50 nm south of Escarpada Point. Inland, Tuguegarao City reported a pressure of 976.9 mb (the minimum reported during the storm's lifetime) while Bess's center passed 30 nm north of the station. Relatively unaffected by a short journey over the mountainous island, Bess emerged into the South China Sea as a minimal typhoon.

Bess's circulation brought high winds affecting much of Luzon and the straits. Inland, Baguio weather station (elevation 4860 feet) experienced wind gusts to 80 knots while Appari on the northern coast recorded a gust to 96 knots. In the Luzon straits several ships reported strong winds as the typhoon's center passed to the south on the 11th. The Indian ship BAILADIA and a German vessel (call sign DEBC) experienced northeasterly winds of 50 knots and 57 knots respectively. Considerable rainfall with 24 hour totals of 5 to 6 inches occurred over much of northern Luzon, with a 24 hour ex-

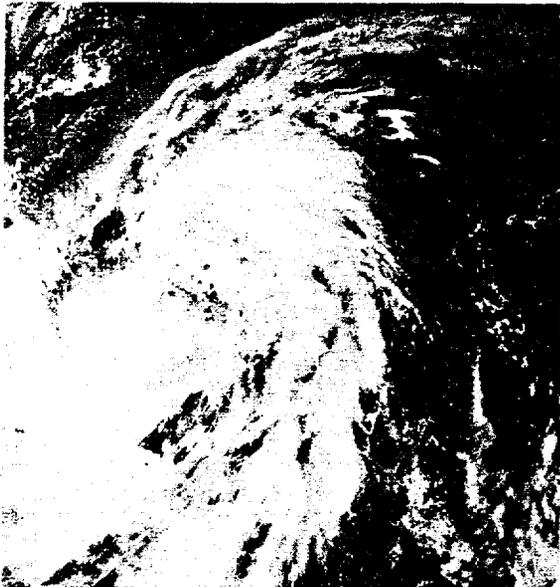


FIGURE 4-20. Tropical Storm Bess exhibiting a broad circulation center 500 nm east of Luzon Island, 9 October 1974, 0235Z.

treme of 30.8 inches measured at Baguio during passage. Landslides and flash flooding accounted for casualties of 26 killed and 3 missing. Total damage including public and private property, agricultural crops (rice), and livestock were estimated near \$9.2 million.

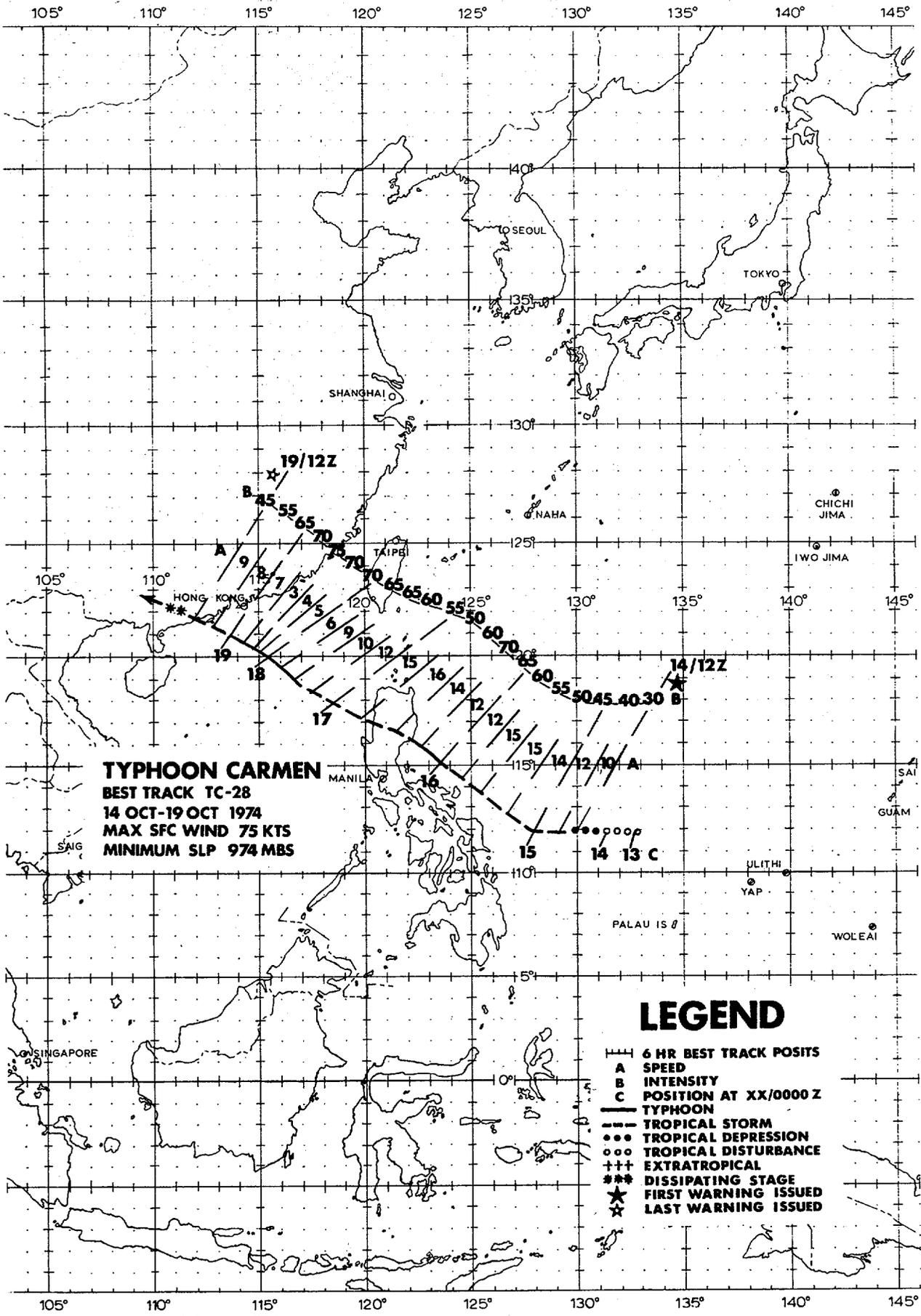
Once in the South China Sea, Bess turned westward in response to a massive high pressure area dominating central and South China. The combination of the typhoon's envelope of low pressure and this high pressure area generated a strong northeast flow over the waters south of the China coast. Pratas Island, 110 nm to the northwest of the typhoon's center, reported sustained (10 minute) winds of 50 knots on the 12th while the British ship MARCO POLO estimated winds of 45 knots 220 nm northwest of the center (Figure 4-21). As Bess tracked south of Hong Kong late on the 12th, peak gusts of 58 knots and 49 knots were observed at Wagland Island and the Royal Observatory respectively.

As the modifying northeast monsoon flow entered the typhoon's circulation, the central pressure began to fill and winds associated with Bess dropped to tropical storm strength on 13th. Bess increased in forward speed crossing Hainan Island late in the day and weakened to depression intensity. Emerging into the Gulf of Tonkin, the circulation continued to weaken, eventually dissipating on the North Vietnam coast early on the 14th.

In addition to the damage wrought on the Philippines, Bess claimed a U. S. Air Force reconnaissance aircraft in the South China Sea south of Hong Kong on the 12th. Last contact with the mission occurred while the aircraft was collecting peripheral data in the typhoon's northern semicircle. Nothing was ever heard again of the plane or its crew of six.



FIGURE 4-21. Bess of minimal typhoon strength in the South China Sea 290 nm southeast of Hong Kong, 12 October 1974, 0321Z. (DMSP imagery)



**TYPHOON CARMEN**  
**BEST TRACK TC-28**  
**14 OCT-19 OCT 1974**  
**MAX SFC WIND 75 KTS**  
**MINIMUM SLP 974 MBS**

**LEGEND**

- 6 HR BEST TRACK POSITS
- A SPEED
- B INTENSITY
- C POSITION AT XX/0000 Z
- TYPHOON
- - - TROPICAL STORM
- TROPICAL DEPRESSION
- TROPICAL DISTURBANCE
- +++ EXTRATROPICAL
- \*\*\* DISSIPATING STAGE
- ★ FIRST WARNING ISSUED
- ☆ LAST WARNING ISSUED

CARMEN

As Bess passed south of Hong Kong, the monsoon trough in the Philippine Sea produced another circulation west of Yap. This system moved westward displaying increasing organization on satellite data. Reports received from the Liberian ship ASIAN MORALITY (west wind 45 knots, pressure 998.5 mb) passing close to the center on 15 October (0000Z) confirmed that Carmen had reached tropical storm strength 180 nm east of Samar Island.

Intensifying further, Carmen turned on a northwest course and headed for northern Luzon. Some 12 hours prior to arrival on the Luzon coast near Casiguran, aircraft reconnaissance reported a central pressure of 974 mb (lowest during the lifetime of storm) and winds of minimal typhoon force (Figure 4-22).

Casiguran reported gusts to 59 knots and a minimum pressure of 981.2 mb as the center passed just north of the station. Maximum 24 hour rainfall recorded as the storm cut across Luzon was at Baguio (8.98 inches). Casualties in the wake of Carmen amounted to 13 dead, and damage losses were estimated near \$11.6 million.

Elsewhere, eastern Taiwan suffered crop damage near \$1.4 million due to the heavy rains associated with typhoons Bess and Carmen. Newspaper reports indicated 11 persons killed on Taiwan.

As Carmen entered the South China Sea, weakening pressures over east central China influenced the typhoon to slow in forward speed. On the 18th, satellite intensity estimates indicated Carmen probably reached a peak strength of 75 knots about 120 nm south of Hong Kong as the storm edged slowly north-westward.

During the 18th, several ships caught in Carmen's circulation reported strong winds. An unidentified vessel experienced northerly winds of 45 knots 150 nm northwest of the typhoon's center, while the Norwegian ship JARAMA reported easterly winds of 50 knots 130 nm to the northeast (both reports 18/0000Z). Later the U. S. ship RAPHAEL SEMMES passing south of the center reported 60 knot winds at 18/1200Z and 19/0000Z.

Following passage of an upper level trough over the Yellow Sea on the 18th, a high pressure ridge began to penetrate into South China, causing a northeasterly flow of modified air from the land mass into the typhoon's circulation. Within 24 hours, Carmen's central pressure began to fall rapidly, and winds dropped to tropical storm force. Turning on a more westerly course, Carmen weakened to depression strength and later dissipated east of the Luichow peninsula early on the 20th.

The center of Carmen approached within 70 nm of Hong Kong on the 19th producing considerable rainfall and gale force winds in the Colony. Peak gusts of 70 knots were observed both at Waglan Island and the Royal Observatory. Maximum rainfall during the 3 day period (18-20 October) totaled 18.1 inches (Figure 4-23). Carmen brought much needed rain to the Colony which was suffering from a drought; however, heavy downpours flooded many low-lying areas and caused landslides and road collapses. Newspaper reports indicated extensive crop damage due to flooding caused by the rains. Two lighters went aground and four other vessels broke away from their moorings. One fatality was attributed to Carmen in the Colony.

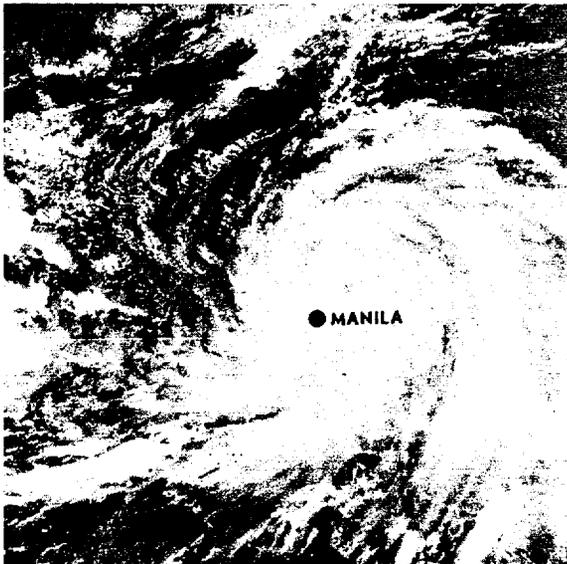


FIGURE 4-22. Typhoon Carmen a few hours prior to landfall on Luzon near Casiguran, 16 October 1974, 0348Z. (DMSP imagery)

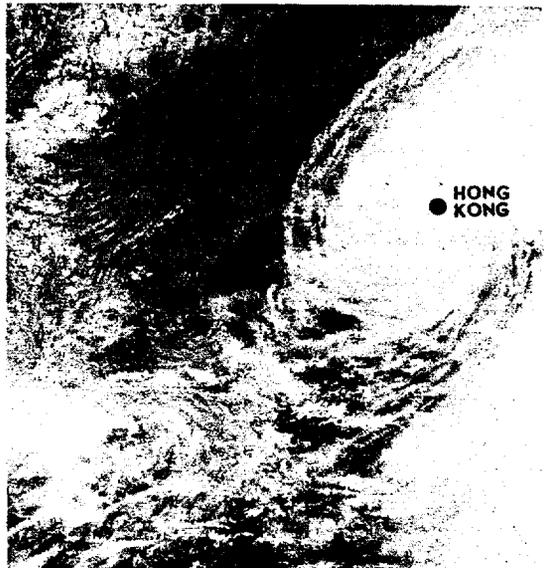
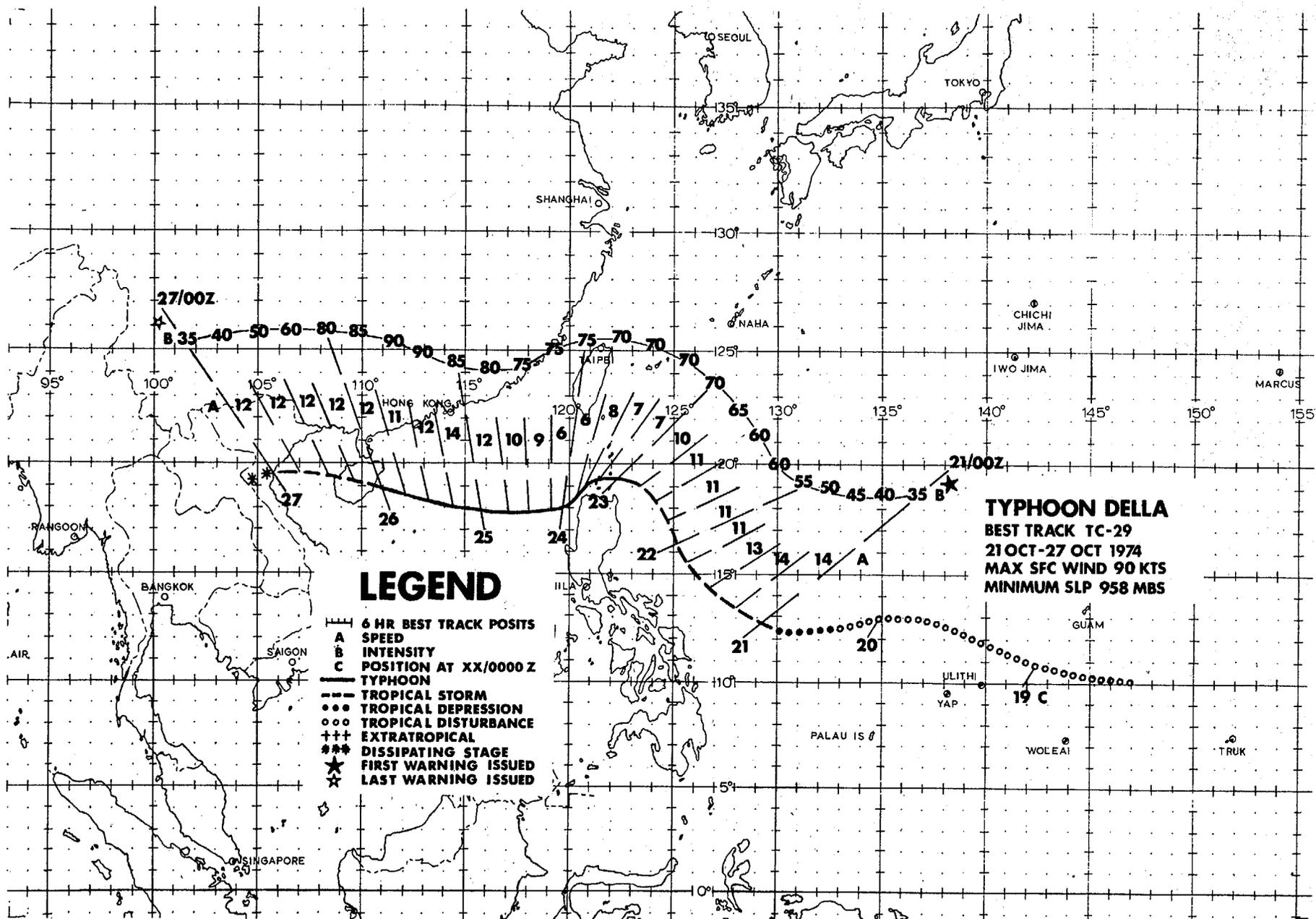


FIGURE 4-23. Tropical Storm Carmen approaching the South China coast 90 nm southwest of Hong Kong, 19 October 1974, 0434Z. (DMSP imagery)



## DELLA

The third in a succession of tropical cyclones developing during October, Della formed in the monsoon trough south of Guam while Carmen weakened in the South China Sea on the 19th. Two days later, the circulation intensified to tropical storm strength approximately 250 nm east of Samar Island (Figure 4-24).

The subtropical ridge north of Della eroded quickly on the 21st as a major short wave in the westerlies approached from China. Della was drawn up into the weakness as the storm shifted to a northwest and later a north-northwest track. While winds about the center reached typhoon force, the short wave trough bypassed the meridian of Della late on the 22nd. With passage of the trough, a strong mass of high pressure advanced into southeast China and blocked further poleward movement of Della. The typhoon responded by turning sharply westward.

Navigating the Luzon straits during the 23rd, Della's center shifted southwestward and skirted the Luzon coast near Cape Bojeador. During this period, strong gusty winds swept the northern Luzon coastline. Aparri measured a gust to 85 knots from the

south after center passage, while Laoag reported southwesterly winds gusting to 56 knots. Vigan, on the west coast, received the heaviest 24-hour rainfall (3.1 inches). Only slight damage occurred in the Philippines due to the center avoiding landfall.

Charting a westward course across the South China Sea as a relatively small typhoon, Della intensified steadily. A Japanese ship the YAMAMIZU MARU encountered winds of 60 knots southeast of the center on the 24th (0600Z) while the Israeli ship NURITH reported 60 knot winds as it crossed west of Della's eye 12 hours later (24/1800Z). Aircraft reconnaissance of Della on the 25th (0456Z) measured a central pressure of 958 mb (lowest recorded during the storm's life) within a tight eye 15 nm in diameter (Figure 4-25).

Intensity estimates from satellite data suggested that Della weakened slightly before landfall on Hainan Island on the 26th. Emerging into and crossing the Gulf of Tonkin, the storm never regained its former intensity. Following coastal crossing of North Vietnam early on the 27th, the circulation weakened and subsequently disappeared from synoptic analyses.



FIGURE 4-24. Della achieving tropical storm strength in the Philippine Sea 210 nm east of Samar Island, 21 October 1974, 0023Z. (DMSP imagery)

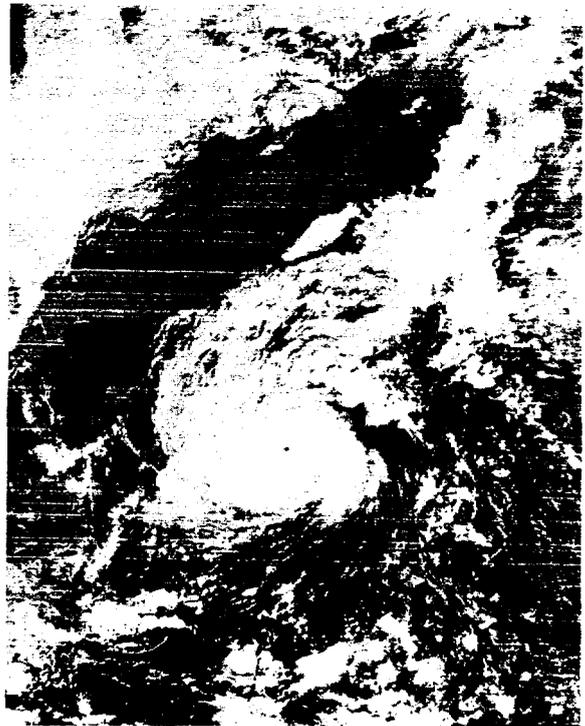
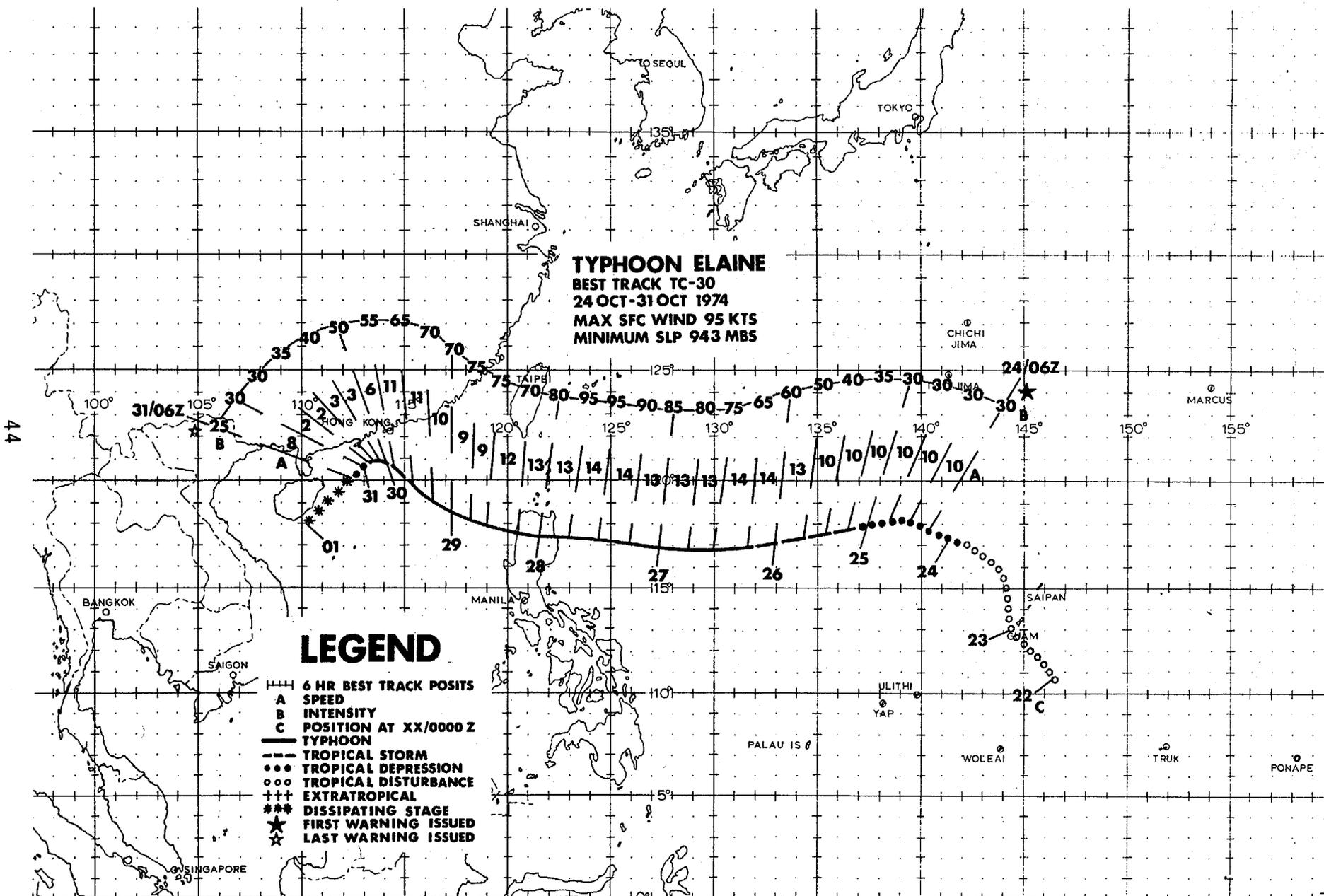


FIGURE 4-25. Typhoon Della near peak intensity in the South China Sea 280 nm south of Hong Kong, 25 October 1974, 0052Z. (DMSP imagery)



**TYPHOON ELAINE**  
**BEST TRACK TC-30**  
**24 OCT-31 OCT 1974**  
**MAX SFC WIND 95 KTS**  
**MINIMUM SLP 943 MBS**

**LEGEND**

- ||| 6 HR BEST TRACK POSITS
- A SPEED
- B INTENSITY
- C POSITION AT XX/0000 Z
- TYPHOON
- TROPICAL STORM
- TROPICAL DEPRESSION
- TROPICAL DISTURBANCE
- +++ EXTRATROPICAL
- \*\*\* DISSIPATING STAGE
- ★ FIRST WARNING ISSUED
- ☆ LAST WARNING ISSUED

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## ELAINE

Elaine, the largest of the typhoons to traverse the Philippine Sea during October, was upgraded from tropical depression status early on 25 October about 550 nm northwest of Guam. Developing from a circulation in the monsoon trough near Guam (the fourth to form in the trough during October), the envelope of Elaine's 1000 mb isobar eventually grew to 500 nm in diameter prior to striking Luzon a week after initial detection (Figure 4-26). During this period, Elaine intensified markedly as aircraft reconnaissance of the typhoon, 12 hours prior to striking Luzon, observed a central pressure of 943 mb and 700 mb flight level winds of 110 knots.

The same high pressure regime that forced Della on a westerly track through the Luzon straits on the 23rd extended eastward, and, late on the 24th, blocked Elaine (as a depression) from any further poleward movement. For a period of three days, Elaine was influenced by this ridge of high pressure to the north, forcing the typhoon on an atypical westerly heading across the Philippine Sea - an anomalous track for October tropical cyclones developing near the Marianas which normally follow a northward recurving course.

Elaine, the most severe typhoon to strike Luzon in the month, brought strong winds over a large expanse of the northern Philippines. Inland, Tuguegarao City observed a minimum pressure of 958.7 mb (27/2300Z) and peak gusts to 96 knots as the center passed south of the station. The west coast station of Vigan recorded a minimum pressure of 972.0 mb with an extreme gust of 100 knots (28/1100Z) as the center emerged into the South China Sea. Newspaper reports indicated the winds were strong enough to lift a new galvanized iron roof off a centuries old cathedral in Vigan. Manila (180 nm to the south) received gusts to 43 knots. Baguio (elevation 4860 feet) experienced extreme winds of 76 knots when the center passed 70 nm to the north.

Elaine brought 24-hour rainfall totals of 3 to 4 inches to northern Luzon while Manila reported 10.5 inches. An extreme 24-hour amount of 32.2 inches was reported at Baguio. The heavy rains combined with those brought by Della several days earlier left most farmlands under water.

Damage was extensive in Luzon with estimates of losses to crops, private and public properties amounting to \$21 million. Thousands of homes were destroyed or damaged with some 300,000 persons left homeless. A total of 23 persons were listed as killed, 14 of whom were lost when swept off a ferryboat in the Sibuyan Sea.

Maritime casualties were high as 20 Philippine fishermen were counted missing in coastal waters. At sea, the 39-ton Japanese vessel KOSHU MARU sank east of Luzon with its crew of 11 presumed lost. The 3800 ton Korean ship MOKPO reported flooding and serious damage near the Luzon straits.

Elaine turned westward then west-northwestward while moving across the South China Sea as the region of high pressure dominating China weakened. During the 28th and 29th, the typhoon's circulation brought strong winds to several merchant vessels. The highest values reported were from the Japanese vessel OYLMPIUS MARU experiencing 50 knots west of the center on 28/1200Z as Elaine was emerging from the Luzon coast, and later from the Russian ship ALEXANDER IVANOV on the 29th (1200Z) 120 nm north of the center who reported winds of 50 knots. Pratas Island observed sustained (10-minute) winds of 45 knots as Elaine's center passed 120 nm to the south on the 29th.

As the typhoon advanced northwestward, pressure over South China continued to fall causing Elaine to slow to almost a stall 90 nm south of Hong Kong late on the 29th. At this time, an onset of northeast monsoon flow influenced Elaine's circulation with subsequent filling and rapid weakening of winds about the center to storm strength. By the 31st, Elaine was reduced to a tropical depression and forced southwestward by an advancing high pressure ridge over South China. One day later the circulation dissipated southeast of Hainan Island.

During the cyclone's close proximity to Hong Kong, Elaine brought gale force winds to the Colony. The Royal Observatory registered a gust of 52 knots, while winds peaked to 55 knots on Waglan Island. A two-day (30th & 31st) rainfall amount of 8.6 inches was measured at the Royal Observatory while Elaine stalled offshore.

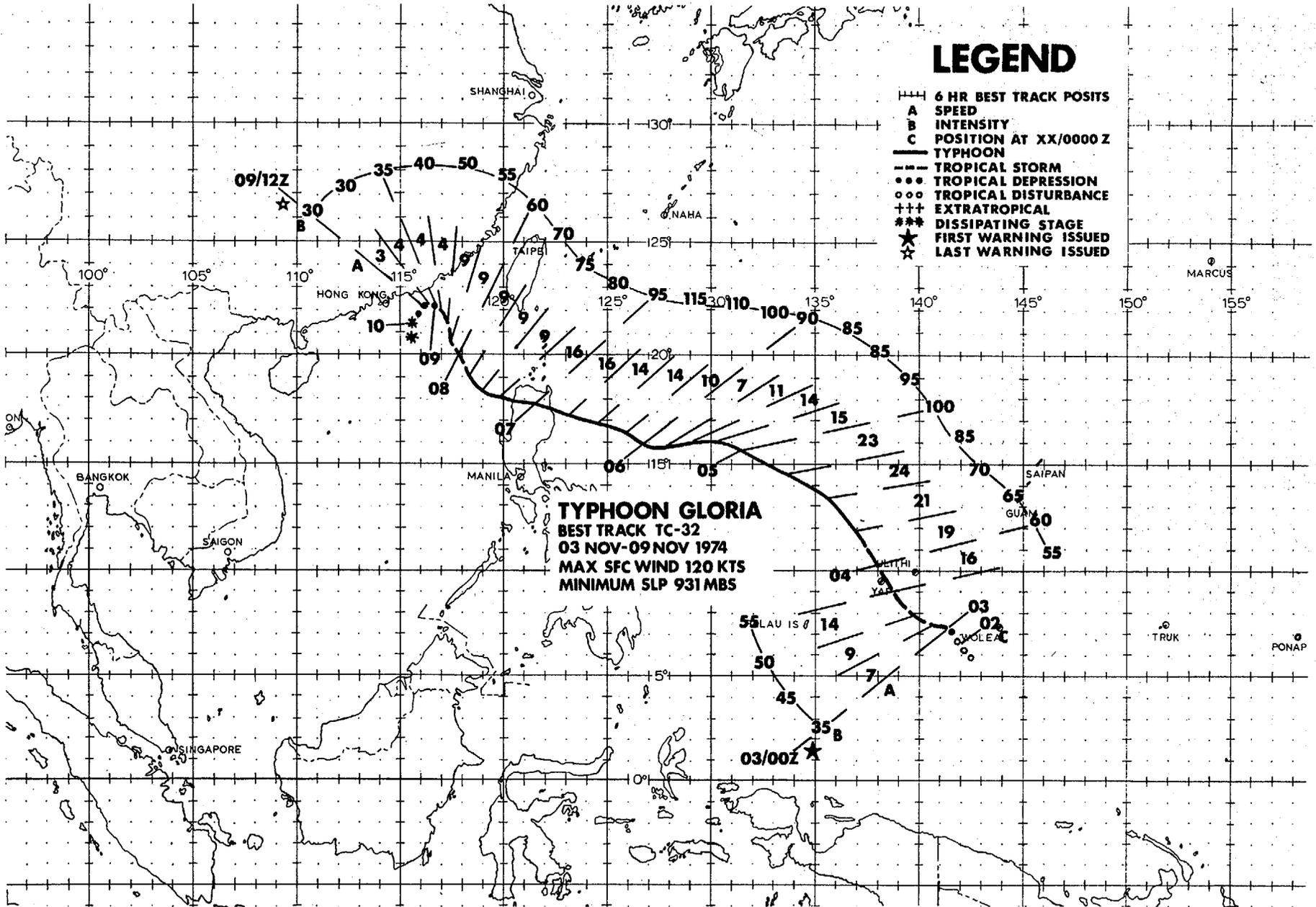


FIGURE 4-26. Massive Typhoon Elaine 300 nm east of Luzon, one day prior to the center striking the island, 27 October 1974, 0015Z. (DMSP imagery)

# LEGEND

- 6 HR BEST TRACK POSITS
- A SPEED
- B INTENSITY
- C POSITION AT XX/0000 Z
- TYPHOON
- - - TROPICAL STORM
- TROPICAL DEPRESSION
- TROPICAL DISTURBANCE
- +++ EXTRATROPICAL
- \*\*\* DISSIPATING STAGE
- ★ FIRST WARNING ISSUED
- ☆ LAST WARNING ISSUED

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## GLORIA

Gloria, like Elaine, developed a large circulation with the cyclone's 1000 mb isobar reaching 400 nm in diameter while traversing the Philippine Sea. Gloria, however, developed to these dimensions early in its life as the storm reached typhoon force 50 nm north of Yap Island on 4 November (Figure 4-27). Earlier Gloria, developing from a depression in the active monsoon trough, had passed about 10 nm northeast of Yap Island. The island's weather station registered a minimum pressure of 985.7 mb at 03/2020Z and later a peak gust of 46 knots as winds shifted to the west.

The building of a strong surface ridge southwest from Marcus Island subjected Gloria to a tightening gradient and strengthening flow in the right semicircle. Strong winds were observed at a considerable distance to the northeast with Andersen AFB Guam, 350 nm from the center, observing gusts to 46 knots midway on the 3rd.

Gloria commenced an unusual acceleration in forward speed up to 24 knots during the 4th - twice the normal for the area. Moving some 500 nm in 24 hours, Gloria occupied the central Philippine Sea early on the 5th. The FREDRICK LYKES caught west of the center at 05/0000Z reported northwest winds of 60 knots, while the barometer dipped to 983.4 mb.

Rapid deepening occurred once typhoon force was attained early on the 4th as Gloria's central pressure fell at a rate of 2.3 mb/hr during the rest of the day culminating in a minimum of 937 mb at 05/0400Z. Aircraft reconnaissance of the central core region early on the 5th proved extremely difficult as the eye diameter was only 4 nm. Subsequently, the typhoon's central pressure rose to 955 mb during the next 12 hours as Gloria's forward motion slowed temporarily to 10 knots. Following the rapid filling process, the typhoon's central pressure began an unusual second deepening as Gloria once again increased in forward speed (15 knots) targeting in on northern Luzon. The last aircraft reconnaissance of the typhoon in the Philippine Sea (10 hours before landfall) revealed Gloria had strengthened markedly--700 mb flight level winds of 120 knots during penetration and a minimum pressure of 931 mb at 06/0916Z (lowest pressure recorded during the year).

Following landfall, Gloria cut across Luzon in 6 hours. Maximum winds recorded during the cyclone's passage occurred at the northern coastal station of Aparri which reported gusts to 96 knots from the northeast and Vigan on the west coast registering south-southwest winds peaking at 94 knots. Laoag received winds gusting to 81 knots prior to Gloria's emergence in the South China Sea. The island town of Tugubgarao, 20 nm south of the center's path, observed the lowest pressure--972.9 mb. Rainfall amounts for a 24-hour period ranged from 3.8 inches at Aparri to 7.8 inches at Tugubgarao while Baguio reported an extreme of 18.9 inches.

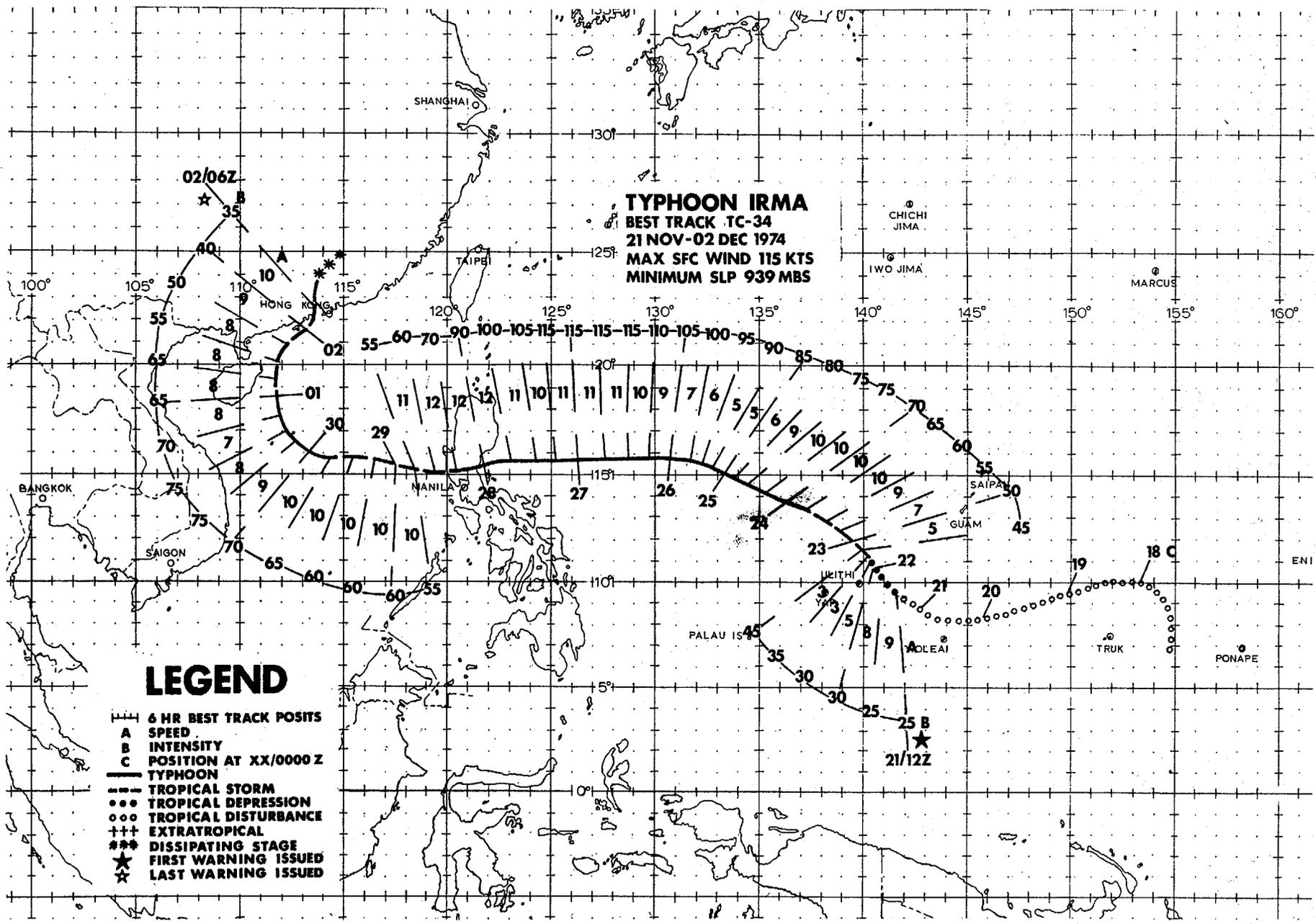
Gloria climaxed a series of five typhoons which affected Luzon in less than a month--a record frequency dating back to 1945. Newspaper reports indicated \$3.2 million in damage to crops and public and private property as a result of Gloria. Over 700 homes were destroyed by wind or inundated by floodwaters leaving close to a 1000 persons homeless. A casualty toll of 10 persons was reported in the typhoon's wake mostly due to drownings.

As Gloria exited Luzon into the South China Sea on the 7th, its forward motion slowed and a gradual northward track commenced as surface pressures were anomalously low over South China. However, like Elaine, Gloria failed to reach the China coast. A massive high pressure area from Manchuria began to penetrate into central China on the 9th blocking further northward progress. The influx of modified air off the mainland due to the onset of a northeast monsoon began to affect Gloria by midday of the 8th as the circulation dropped in intensity to storm force. Reduced to a tropical depression by the 9th, Gloria began to drift southward and dissipated on the 10th as pressures continued to build over South China.

During the storm's transit of the waters west of Luzon during the 7th and 8th some of the highest winds reported by merchant vessels during the year occurred. Winds of 65 knots were reported from a British vessel (call sign MYCE) (07/1200Z) and a Kuwait ship (call sign 9KSD) (08/0000Z) as both vessels passed within 60 nm of the eye.



FIGURE 4-27. Gloria achieving typhoon strength 100 nm north of Yap Island in the Philippine Sea, 4 November 1974, 0300Z. (DMSP imagery)



**LEGEND**

- ||||| 6 HR BEST TRACK POSITS
- A SPEED
- B INTENSITY
- C POSITION AT XX/0000 Z
- TYPHOON
- TROPICAL STORM
- TROPICAL DEPRESSION
- TROPICAL DISTURBANCE
- +++ EXTRATROPICAL
- \*\*\* DISSIPATING STAGE
- ★ FIRST WARNING ISSUED
- ★ LAST WARNING ISSUED

IRMA

The year's last typhoon, Irma terminated the barrage of late season typhoons to strike Luzon Island of the Philippine archipelago during October and November.

Initial development of Irma took place south of Guam as a depression in the monsoon trough. Passing north of Ulithi atoll on 22 November (Figure 4-28), Irma's circulation intensified rapidly producing typhoon force winds late on the 23rd. Like Elaine and Gloria, Irma's circulation dominated the Philippine Sea with the diameter of the 1000 mb isobar extending about 450 nm by the 23rd. The central pressure of the typhoon plummeted after passage of Ulithi until a minimum of 939 mb was recorded by aircraft reconnaissance 3 1/2 days later at 26/0635Z. Sustained surface winds generated around Irma's eye were estimated to be 115 kts during the 26th as the typhoon reached its peak intensity 400 nm east of Luzon.

Late on the 25th a massive high pressure ridge extending eastward from China to the Ryukyu chain prevented further poleward movement by Typhoon Irma near 16°N (Figure 4-29). This ridge dominated the region north of the typhoon through the 27th forcing Irma on an almost straight westerly track until it crossed the coast of Luzon. The turn of Irma to the west was very unusual. After reaching such a poleward latitude in the Philippine Sea few November typhoons fail to recurve.

Of the ships caught in the typhoon's gale force wind area in the Philippine Sea, the vessels MIKUNISAN MARU (200 nm west of the center at 25/1200Z), and a British ship (call sign GPIP) 200 nm northeast of the center at 26/0000Z) both reported 45 knot winds.

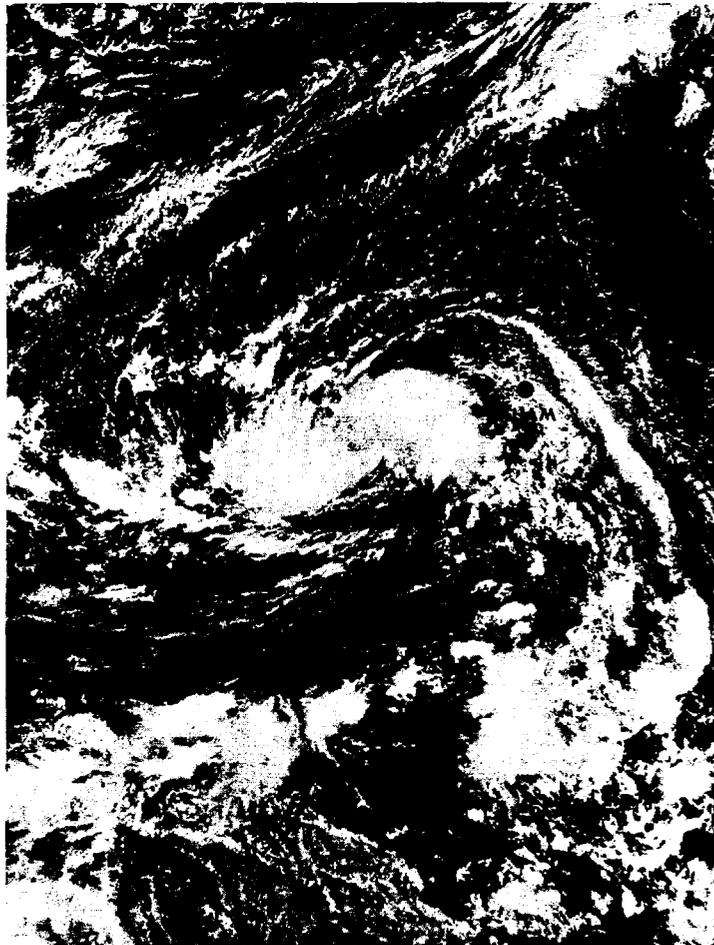


FIGURE 4-28. Irma strengthening to tropical storm intensity 300 nm southwest of Guam, 22 November 1974, 0229Z. (DMSP imagery)

Maritime casualties included several ships caught in heavy seas produced by Irma's peripheral winds. The 5 ton Liberian ship PACIFICOEVERTT ran aground near Siarago Island in the southern portion of the Philippine archipelago, while the 4 1/2 ton Singapore ship FWSAN met the same fate at Nazasa Bay on Subic Bay. Reports from Catabato, Mindanao indicated the 2 ton Philippine vessel ZAMBOANGA CITY capsized and sunk offshore but all the crew survived. Not so fortunate was the 3 ton Panamanian ship GREEN HILL which sank after the cargo shifted 60 nm north of Miyako Jima in the Ryukyu chain. Of a crew of 20, four were lost.

Striking Luzon early on the 28th, the eye of Irma crossed the coastline 30 nm south of Baler, passing directly over Clark Air Base, later exiting Luzon near Iba on the west coast. Peak gusts of 74 knots and a minimum pressure of 983.9 mb were experienced at Baler. Later Clark AB recorded a barometric reading of 979.0 mb in the eye at 28/0700Z while registering a peak gust of 83 knots from the northwest at 28/0500Z. This was the highest recorded gust at Clark AB since before World War II. As Irma's eye emerged on the west coast, east-southeast-

erly winds peaking at 58 knots occurred at Iba as the pressure dropped to 983.5 mb.

Twenty-four hour rainfall totals from Irma generally varied from 2 to 5 inches over Luzon with an extreme of 6.7 inches recorded at Cubi Point Naval Air Station. This amount broke previous station records for the month of November (previous 24-hour maximum was 5.3 inches).

Irma brought strong gale force winds to the metropolitan area of Manila. A gust to 51 knots from the southwest was reported at the international airport while the port area experienced westerly winds gusting to 60 knots. Several ships in Manila Bay were reported blown almost to the Roxas Boulevard seawall during the siege.

Damage to public and private buildings, public works, crops, and livestock was estimated at \$7.3 million. Over 1000 homes were reported destroyed or partially damaged by the winds. Newspaper reports indicated Irma claimed 11 lives in addition to sinking several small vessels and fishing boats.

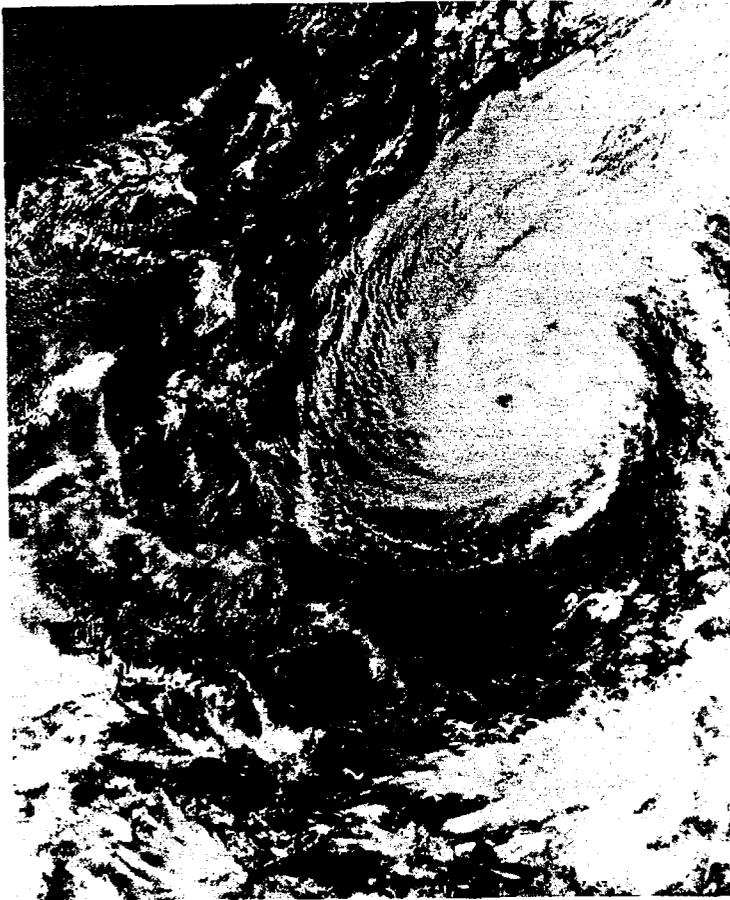


FIGURE 4-29. Massive Typhoon Irma in the central Philippine Sea 500 nm east of Cantanduanes Island, 25 November 1974, 0315Z. [DMSP imagery]

As Irma departed Luzon, the ridge of high pressure over South China weakened, allowing the cyclone, then of tropical storm strength, to take a slight poleward motion during its track across the South China Sea. Late on the 29th, pressure began to fall over southwestern China as remains of a tropical depression (formerly T.C. 30-74) moved into the area from Burma. Irma briefly regained typhoon strength during this period, and abruptly turned to the north on the 30th passing over the Paracel Islands. A meteorological station in the islands observed a pressure minimum of 970.5 mb (30/1200Z) and sustained (10 minute) wind of 60 knots as winds shifted from the west at 20/1500Z. Based on available records since 1945, no tropical cyclone has been as intense as Irma so late in the season in the northern South China Sea.

Passing abeam of Hainan Island on 1 December, Irma dropped below typhoon strength and rapidly filled while approaching the South China coast. Tracking 30 nm west of Hong Kong the circulation dissipated inland one day later. Maximum rainfall brought to Hong Kong by the weakening storm was 7.0 inches recorded at the Royal Observatory during the 2nd, while southerly winds gusting to 34 knots were observed at Cheung Chau. It is noteworthy to mention that Irma was the latest tropical storm on record to affect the South China coast.

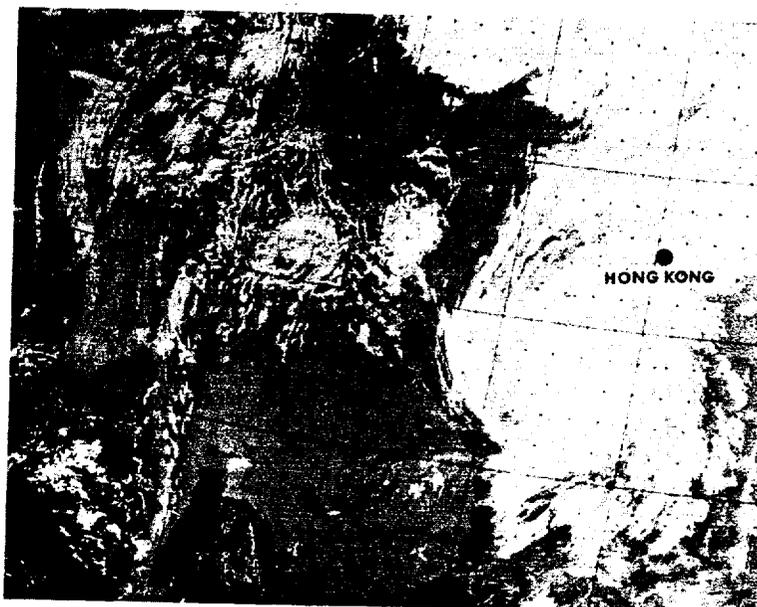


FIGURE 4-30. Typhoon Irma 270 nm south-southwest of Hong Kong 1 December 1974, 0124Z. [DMSP imagery]

### 3. TROPICAL CYCLONE CENTER FIX DATA

#### a. Discussion of Data:

The fix data computer print-out includes all sources of fix data for each tropical cyclone. Regardless of the type of fix, the first four columns of the print-out list the same information as follows:

- FIX NO. - Fixes are numbered sequentially.
- TIME - In day, hour and minutes (Zulu Time) of fix.
- POSIT - Position of storm center in degrees and tenths.
- FIXCAT - Type of fix used (SAT-satellite, P-aircraft penetration, LRDR-land radar, AC R-aircraft radar, SRDR-ship radar, CPA-station experiencing center passage, SCF-synoptic chart fix).

The format of the remainder of the print-out varies with the type of fix.

(1) **SATELLITE** - The primary satellite fix data was obtained from the various DMSP sites (Chapter II). Additional fix data was obtained from FLEWEAFAC and NESS, Suitland, Maryland (NOAA-2 prior to 16 Oct 1974, NOAA-3 from 16 Oct 74 to 17 Dec 1974, and NOAA-4 after 17 Dec 1974). Intensity estimates and trends (when available) are listed using the NESS classification system. If the source was DMSP data, the Position Code Number (PCN) appears followed by the acronym DMSP. If the source was NOAA-2, NOAA-3, or NOAA-4 data, the acronym NON DMSP appears followed by the type of satellite utilized and the CONF Number.

(2) **RADAR** - The latitude and longitude of radar site is given in the POSIT OF RADAR column. If available, plain language remarks appear after AC&W radar reports regarding tropical cyclone characteristics, size and accuracy of fix. All other land radar contain a 5-digit code group (if available) identical to the WMO radar code for reporting tropical cyclone characteristics with regard to size, development, and accuracy of location of the center or eye. A list of those land radar sites providing data in the fix print-out is given in Table 4-8.

(3) **AIRCRAFT PENETRATION** - This data was normally obtained at scheduled fix times. Additional reconnaissance aircraft fixes are sometimes made during peripheral data gathering legs between scheduled fixes. These additional fixes normally provide date, time, and position data only.

The categories containing information from reconnaissance aircraft are:

#### (a) ACCRI (Accuracy)

The estimated navigation (first number) and meteorological (second number) accuracies are expressed in nautical miles.

#### (b) FIX LVL (Fix Level)

A constant-pressure-surface flight level (listed in millibars) is normally maintained during a tropical cyclone fix mission. Low-level missions (1500 feet) are conducted at a constant, true altitude.

#### (c) MAX OBS FLT LVL WIND

Wind speed (kt) at flight level is measured by the AN/APN 147 doppler radar system aboard the WC-130 aircraft. Values entered in this category represent the maximum wind measured prior to obtaining a scheduled fix. This measurement may not represent the maximum wind because the aircraft samples only those portions of the central core region along the flight path. For this reason, the observed maximum wind may be significantly lower than the true maximum wind in the circulation (e.g., penetration through weak semicircle on first fix).

A limitation of the doppler radar system occasionally prevents the measurement of the maximum wind in intense typhoons. In areas of heavy rainfall, the radar may track energy reflected from precipitation rather than the sea surface, preventing accurate wind measurement. In these cases the wind speed will not be reported. Also, the doppler radar mount on the WC-130 restricts wind measurements to drift angles  $<27^\circ$  if wind is normal to aircraft heading.

#### (d) MAX OBS SFC WIND

The maximum surface wind (knots) estimated from flight level is entered in this column. The observation is an estimate based on sea state. The sampling limitation noted in paragraph (c) also pertains to this category. In addition, availability of this data is dependent on the absence of under-cast conditions. The position of maximum flight level winds and maximum observed surface winds do not necessarily coincide.

#### (e) OBS MIN SLP

The minimum observed sea level pressure is normally obtained from a dropsonde released in the vortex center. If the ocean surface is visible, the dropsonde will be released over the center of the area of calm seas; otherwise it is released over a center determined by flight level winds. If the fix is made at 1500 feet, the sea level pressure is extrapolated from that level.

#### (f) MIN 700 MB HT

The minimum height of the 700 mb surface in the vortex center is recorded in decameters.

#### (g) FLT LVL TI/TO

Denotes maximum temperatures measured in the center (TI) and ambient temperature outside the center (TO). Ambient temperature is measured just prior to entering the wall cloud. Both temperature observations are in degrees Celsius and are made at flight level.

Reconnaissance aircraft seldom penetrate on the same azimuth from one fix to another. Thus, the position of TO normally varies from the center, both in bearing and range. This position is dependent on radar definition of the storm.

(h) EYE FORM/ORIENTATION/DIA

The shape and diameter (nautical miles) of the eye are determined by radar. This is reported only if the center is 50% or more surrounded by wall cloud. The orientation of the major axis concerns elliptical eyes. Abbreviations for the eye forms are as follows:

- CIRC - Circular
- ELIP - Elliptical
- CONC - Concentric

TABLE 4-8. LAND RADAR SITES

<u>Location</u>	<u>Station No.</u>	<u>ICAO</u>	<u>Station Name</u>
14.2N 122.0E	98440	RPUD	DAET
14.6N 121.0E	98425		MANILA
16.4N 120.6E	98328	RPUB	BAGUIO
15.2N 120.5E	98327	RPMK	CLARK AB (USAF)
14.4N 122.6E			PARANAL AS (AC&W)
16.6N 120.3E			WALLACE AS (AC&W)
18.1N 120.5E			PARADES AS (AC&W)
13.6N 144.9E	91218	PGUA	ANDERSEN AFB (USAF)
26.1N 127.8E	47937		ITOKAZU
26.4N 127.8E	47931	RODN	KADENA AB (USAF)
26.2N 127.7E	47930	ROAHJ	NAHA AB (JASDF)
24.8N 125.3E	47927	ROMY	MIYAKOJIMA
24.3N 124.2E	47918	ROIG	ISHIGAKIJIMA
28.4N 129.5E	47909		NAZE
33.3N 134.2E	47899		MURATOMISAKI
30.6N 131.0E	47869		TANEGASHIMA/NAKA
33.6N 130.5E	47808	RJFFJ	FUKUOKA/ITAZUKE (JASDF)
33.4N 130.4E	47806		FUKUOKA/SEFURISAN
34.3N 132.6E	47792		HIROSHIMA/HAIGAMINE
35.5N 133.1E	47791		MATSUE/MISAKAYAWA
35.8N 139.4E	47643	RJTJJ	IRUMA AB (JASDF)
35.7N 139.3E	47642	RJTY	YOKOTA AB (USAF)
35.4N 138.7E	47639		FUJISAN
35.2N 137.0E	47636		NAGOYA
33.2N 126.3E	47187	RKPM	CHEJU-DO/MOSLUPO AB
24.3N 120.6E	46770	RCQM	CCK AB/TAIWAN (USAF)
24.0N 121.6E	46763	RCYU	HUA-LIEN
22.6N 120.3E	46744		KAHHSIUNG
24.0N 121.6E	46699		HWALIEN
22.3N 114.2E	45005		HONG KONG OBSR.

b. FIX DATA PRINTOUTS:

TROPICAL STORM WANDA  
FIX POSITIONS FOR CYCLONE NO. 1  
0000Z 10 JAN TO 1200Z 13 JAN

FIX NO.	TIME	POSIT	FIX ACCKY CAT	FIX NAV-MET	LVL	MAX OBS				MAX OBS			OBS MIN SLP	MIN MGT	FLI 11/10	EYE FORM	ORLEN- TATION	EYE DIA	POSIT OF MAUAK	MSN NMHR
						FLT DIR	LVL VEL	WIND BRG	WIND HNG	SFC WIND VEL	WIND BRG	WIND HNG								
1	060120Z	7.0N 128.3E	SAT	(11.5/1.5 / 00.5/23HRS)																
2	082126Z	7.4N 128.7E	SAT	(11.5/1.5 / 0 / HRS)																
3	090015Z	8.1N 129.1E	SAT	(13.0/3.0 / 01.0/24HRS)																
4	090016Z	8.0N 129.0E	SAT	(12.0/2.0 / 01.0/24HRS)																
5	090339Z	8.0N 129.8E	SAT	(11.5/1.5 / 0 / HRS)																
6	091148Z	9.7N 130.2E	SAT																	
7	091622Z	10.0N 130.5E	SAT																	
8	092249Z	9.2N 131.3E	SAT	(12.0/2.0 / / HRS)																
9	100110Z	11.0N 131.0E	SAT	(13.0/3.0 / 5 / 23HRS)																
10	100111Z	11.0N 131.0E	SAT	(13.0/3.0 / 01.0/24HRS)																
11	100115Z	10.0N 131.0E	P	- 15 700 270 55 170																
12	100325Z	9.9N 132.2E	SAT	(12.0/2.0 / 00.5/24HRS)																
13	100325Z	10.0N 132.1E	SAT	(12.0/2.0 / / HRS)																
14	100415Z	10.3N 131.9E	P	2 15 700 270 55 190																
15	101131Z	10.8N 133.0E	SAT																	
16	101131Z	10.8N 133.0E	SAT																	
17	101535Z	11.5N 131.5E	AC M																	
18	101808Z	11.8N 132.0E	SAT																	
19	101808Z	11.3N 131.8E	SAT	(IN DATA )																
20	110010Z	12.5N 133.5E	SAT	(14.0/4.0 / / HRS)																
21	110012Z	12.0N 133.8E	SAT	(13.0/3.0 / 01.0/24HRS)																
22	110012Z	12.9N 133.5E	SAT	(13.5/3.5 / 01.5/24HRS)																
23	110012Z	12.7N 133.9E	SAT	(13.0/3.0 / 02.0/ / HRS)																
24	110310Z	13.3N 133.9E	SAT	(13.0/3.0 / / 24HRS)																
25	110310Z	13.0N 133.9E	SAT	(13.5/3.5 / / HRS)																
26	110430Z	12.5N 134.9E	P	5 20 1500 - - - -																
27	111533Z	12.0N 136.8E	SAT																	
28	112213Z	13.4N 137.8E	SAT	(13.0/3.0 / / 24HRS)																
29	112309Z	14.0N 138.0E	SAT	(12.0/3.0 / 02.0/24HRS)																
30	112309Z	14.0N 137.8E	SAT	(12.0/3.0 / 02.0/24HRS)																
31	112354Z	13.5N 138.0E	SAT	(12.0/2.0 / 01.0/24HRS)																
32	112354Z	13.7N 138.2E	SAT	(12.0/2.0 / 01.5/24HRS)																
33	120047Z	13.7N 138.1E	P	5 10 700 160 30 100 120 30 00																
34	120255Z	13.5N 138.3E	SAT	(12.0/2.0 / 01.0/24HRS)																
35	120255Z	13.5N 138.6E	SAT	(12.0/2.0 / 01.5/ / HRS)																
36	120255Z	13.4N 138.0E	SAT	(11.5/1.5 / / HRS)																
37	120310Z	14.0N 138.3E	P	5 10 1500 - - - -																
38	120900Z	14.5N 139.3E	P	10 10 700 120 35 120																
39	121054Z	14.6N 139.8E	SAT																	
40	121054Z	14.1N 139.5E	SAT																	
41	121539Z	14.6N 140.4E	SAT																	
42	121539Z	14.7N 141.1E	SAT																	
43	121539Z	15.5N 141.3E	SAT																	
44	122154Z	15.0N 141.7E	SAT	(12.0/2.0 / 01.0/24HRS)																
45	122158Z	14.8N 142.2E	P	5 10 1500 360 35 320																
46	122366Z	14.4N 142.0E	SAT	(12.0/2.0 / 5 / 24HRS)																
47	122366Z	15.0N 142.6E	SAT	(12.0/2.0 / 5 / 24HRS)																
48	130000Z	17.5N 145.0E	SAT	(12.0/2.0 / 5 / 24HRS)																
49	130241Z	14.8N 143.0E	SAT	(12.0/2.0 / 5 / 24HRS)																
50	130241Z	14.8N 143.0E	SAT	(12.0/2.0 / 5 / HRS)																
51	130241Z	14.7N 143.1E	SAT	(11.5/1.5 / 0 / 24HRS)																
52	130815Z	15.9N 145.6E	P	1 5 1500 40 30 320 30 20 140 34 1003																

TROPICAL STORM AMY  
FIX POSITIONS FOR CYCLONE NO. 2  
1200Z 14 MAR TO 1200Z 19 MAR

FIX NO.	TIME	POSIT	FIX ACCKY CAT	FIX NAV-MET	LVL	MAX OBS				MAX OBS			OBS MIN SLP	MIN MGT	FLI 11/10	EYE FORM	ORLEN- TATION	EYE DIA	POSIT OF MAUAK	MSN NMHR	
						FLT DIR	LVL VEL	WIND BRG	WIND HNG	SFC WIND VEL	WIND BRG	WIND HNG									
1	122235Z	8.2N 145.4E	SAT	(IN DATA )																	
2	132217Z	8.1N 143.2E	SAT	(11.0/1.0 / 01.0/24HRS)																	
3	141059Z	8.3N 142.4E	SAT																		
4	142340Z	8.7N 142.1E	SAT	(11.5/1.5 / 00.5/24HRS)																	
5	150043Z	8.8N 138.7E	SAT	(12.0/2.0 / 01.0/24HRS)																	
6	151040Z	9.1N 141.2E	SAT																		
7	152422Z	10.3N 137.0E	SAT	(12.0/2.0 / 00.5/24HRS)																	
8	152330Z	10.7N 137.0E	SAT	(12.5/2.5 / 00.5/24HRS)																	
9	161112Z	11.4N 136.5E	P	- 700 - - - -																	
10	161204Z	11.7N 136.2E	SAT																		
11	161410Z	11.7N 136.3E	P	5 10 700 290 25 200																	
12	162344Z	13.1N 136.8E	SAT	(12.5/2.5 / 00.5/24HRS)																	
13	170022Z	14.0N 136.9E	SAT	(13.0/3.0 / 00.5/24HRS)																	
14	170425Z	14.0N 137.2E	P	5 3 1500 180 50 140 90 30 240 12 490																	
15	170905Z	14.9N 137.0E	P	5 5 1500 40 35 320																	
16	171145Z	15.9N 138.3E	SAT																		
17	171513Z	15.6N 138.9E	P	3 5 700 210 52 110 120 - - -																	
18	172246Z	17.4N 140.0E	SAT	(12.5/2.5 / 5 / 24HRS)																	
19	172246Z	17.0N 140.1E	SAT	(12.0/2.0 / / HRS)																	
20	172321Z	17.7N 140.5E	SAT	(13.0/3.0 / 5 / 24HRS)																	
21	180143Z	17.4N 140.1E	SAT	(12.0/2.0 / / HRS)																	
22	180344Z	17.8N 141.1E	P	5 8 1500 20 50 340 50 3 330 30 495																	
23	181127Z	19.3N 143.8E	SAT																		
24	181535Z	19.4N 144.5E	P	20 10 700 80 35 40 45 - - -																	
25	182030Z	21.0N 146.4E	P	20 10 700 310 40 - - -																	
26	182222Z	22.9N 149.0E	SAT	(12.0/3.0 / 01.0/24HRS)																	
27	182227Z	22.1N 149.1E	SAT	(13.0/3.0 / 00.5/24HRS)																	
28	190645Z	23.5N 151.0E	P	5 5 1500 - - - -																	
29	190815Z	23.0N 151.6E	P	- 1500 - - - -																	
30	190912Z	24.3N 151.7E	P	5 2 1500 270 30 - - -																	

TROPICAL STORM BASE  
FIX POSITIONS FOR CYCLONE NO. 3  
0000Z 26 APR TO 0600Z 02 MAY

FIX NO.	TIME	POSIT	FIX CAT	ACQNY NAV-MET	FIX LVL	MAX OBS FLT LVL WIND				MAX OBS SFC WIND			OBS MIN SLP	MIN TGT	FLT LVL T1/T0	EYE FORM	ORIENT IATION	EYE DIA	POSIT OF RADAR	MSN NMBR
						DIR	VLL	BRG	RNG	VEL	BRG	RNG								
1	232143Z	1.8N 153.8E	SAT	(11.5/1.5 / 00.5/24HRS)																
2	242151Z	6.3N 156.3E	SAT	(11.5/1.5 / S / 24HRS)																
3	250148Z	7.4N 152.6E	SAT	(11.5/1.5 / 00.5/24HRS)																
4	251003Z	9.3N 149.5E	SAT																	
5	251429Z	9.3N 149.3E	SAT																	
6	252245Z	11.4N 148.4E	SAT	(12.0/2.0 / 00.5/24HRS)																
7	252259Z	11.0N 148.7E	SAT	(12.0/2.0 / 00.5/24HRS)																
8	252301Z	9.2N 147.9E	P	10 20 1500 80 20 350																
9	260129Z	11.6N 147.6E	SAT	(12.0/2.0 / 00.5/24HRS)																
10	260320Z	9.9N 146.9E	P	3 10 1500 190 25 110																
11	260835Z	10.9N 146.1E	P	5 10 700 40 30 320																
12	261127Z	12.4N 145.8E	SAT																	
13	261318Z	11.7N 145.8E	P	7 5 700 350 35 290																
14	261410Z	12.5N 145.6E	SAT																	
15	261519Z	11.9N 145.4E	P	7 5 700 90 30 360																
16	261820Z	12.2N 145.5E	P	5 6 700 320 30 280																
17	262104Z	12.2N 145.5E	P	5 1 700 210 30 160																
18	262145Z	12.1N 145.3E	LHUR	- POSSIBLE CENTER, 15 DEG SPIRAL OVERLAY, NEG. WALL CLOUD																
19	262214Z	12.2N 144.2E	SAT	(12.5/2.5 / / HRS)																
20	262266Z	12.4N 145.3E	SAT	(13.0/3.0 / 01.0/24HRS)																
21	262268Z	12.6N 145.4E	SAT	(12.0/2.0 / S / 24HRS)																
22	270005Z	12.6N 145.3E	P	5 5 1500 110 25 360																
23	270111Z	12.7N 145.4E	SAT	(13.0/3.0 / 01.0/24HRS)																
24	270540Z	13.5N 145.3E	LHUR	- POSSIBLE CENTER, 20 DEG SPIRAL OVERLAY, WALL CLOUD FORMING ALL QUADS																
25	270610Z	13.5N 145.5E	LHUR	- ELLIP EYE 34x16, OPFN NE																
26	270835Z	13.6N 145.6E	P	5 3 700 180 20 90																
27	271108Z	14.3N 146.4E	SAT																	
28	271240Z	13.8N 145.9E	LHUR	- POSSIBLE CENTER, 15 DEG SPIRAL OVERLAY, WALL CLOUD SW-NW																
29	271434Z	14.5N 145.8E	P	4 8 700 280 40 220																
30	272208Z	15.9N 145.9E	SAT	(12.0/3.0 / 01.0/24HRS)																
31	272322Z	15.5N 145.5E	SAT	(12.0/2.5 / 00.5/24HRS)																
32	280052Z	16.1N 145.6E	SAT	(12.0/3.0 / 01.0/24HRS)																
33	280325Z	16.1N 145.6E	P	2 5 700 80 23 300																
34	280925Z	16.5N 145.6E	P	2 10 700 300 25 210																
35	281050Z	17.0N 145.4E	SAT																	
36	281333Z	17.7N 145.7E	SAT																	
37	281435Z	17.4N 145.7E	P	5 10 700 360 20 270																
38	282150Z	18.0N 144.9E	SAT	(13.5/3.5 / 01.5/24HRS)																
39	282150Z	17.6N 145.2E	SAT	(13.5/3.5 / 01.5/48HRS)																
40	282158Z	17.8N 145.1E	P	20 2 700 320 25 250																
41	282239Z	17.8N 145.2E	SAT	(14.0/4.0 / 02.0/24HRS)																
42	282332Z	18.1N 145.0E	SAT	(13.5/3.5 / 01.5/24HRS)																
43	290215Z	18.4N 145.1E	SAT	(13.5/3.5 / 01.5/24HRS)																
44	290215Z	18.5N 144.9E	SAT	(13.5/3.5 / 01.5/48HRS)																
45	290753Z	18.8N 145.2E	P	5 5 700 260 40 210																
46	291032Z	18.9N 144.3E	SAT																	
47	291032Z	19.0N 144.2E	SAT																	
48	291443Z	19.7N 145.3E	P	5 5 700 180 55 90																
49	291456Z	19.2N 144.7E	SAT																	
50	291456Z	19.3N 145.0E	SAT																	
51	292313Z	20.3N 145.0E	SAT	(13.5/3.5 / S / 24HRS)																
52	292313Z	20.1N 144.8E	SAT	(14.0/4.0 / 00.5/24HRS)																
53	292345Z	20.0N 145.0E	SAT	(13.0/2.5 / 01.0/24HRS)																
54	300157Z	20.5N 144.8E	SAT	(13.5/3.5 / S / 24HRS)																
55	300157Z	20.3N 144.6E	SAT	(14.0/4.0 / 00.5/24HRS)																
56	300404Z	20.5N 144.3E	P	2 2 1500 330 35 240																
57	300415Z	21.3N 144.3E	P	5 5 700 320 75 250																
58	301155Z	21.4N 144.9E	SAT																	
59	301437Z	21.7N 145.2E	SAT																	
60	301510Z	22.1N 144.9E	P	10 10 700 270 70 180																
61	302235Z	22.6N 146.3E	SAT	(13.0/3.5 / 00.5/24HRS)																
62	010138Z	23.2N 146.9E	SAT	(13.0/3.5 / 00.5/24HRS)																
63	010250Z	23.6N 146.1E	P	10 5 700 250 75 180																
64	010820Z	25.2N 147.0E	P	10 5 700 290 50 200																
65	011137Z	26.1N 147.3E	SAT																	
66	011419Z	26.5N 148.0E	SAT																	
67	012216Z	28.8N 151.0E	SAT	(13.0/3.0 / 02.0/48HRS)																
68	012237Z	30.0N 151.2E	SAT	(12.0/3.0 / 01.0/24HRS)																
69	012237Z	30.0N 151.2E	SAT	(12.0/2.5 / 00.5/ HRS)																
70	012315Z	30.0N 151.2E	P	10 10 700 - - -																
71	020119Z	31.0N 152.7E	SAT	(12.0/3.0 / 01.0/24HRS)																
72	020120Z	30.9N 152.9E	SAT	(12.0/2.5 / 00.5/ HRS)																
73	021119Z	29.4N 157.0E	SAT																	

TYPHOON CARLA  
FIX POSITIONS FOR CYCLONE NO. 4  
0000Z 02 MAY TO 0600Z 07 MAY

FIX NO.	TIME	POSIT	FIX CAT	ACCRV NAV-MET	FIX LVL	MAX OBS				MAX OBS			OBS MIN SLP	MIN 700MB HGT	FLT LVL T1/T0	EYE FORM	UMIEN-TATIUN	EYE DIA	PUSIT OF MADAR	MSN NMBM	
						DIR	VEL	BRG	RNG	SFC WIND	VEL	BRG									RNG
1	282150Z	5.0N 158.4E	SAT			(11.5/1.5 /00.5/24HRS)				PCN 3	DMSP										
2	291315Z	5.5N 157.6E	SAT			(11.5/1.5 /S /24HRS)				PCN 6	DMSP										
3	292132Z	6.0N 156.6E	SAT			(11.5/1.5 /S /24HRS)				PCN 6	UMSP										
4	302108Z	8.0N 156.0E	SAT			(12.0/2.0 /D1.0/24HRS)				NOAA-2										(CONF 03)	
5	302255Z	8.1N 155.0E	SAT			(11.5/1.5 /S /24HRS)				PCN 5	DMSP										
6	010138Z	9.0N 154.5E	SAT			(11.5/1.5 /S /24HRS)				PCN 5	DMSP										
7	010955Z	9.8N 152.3E	SAT							PCN 6	DMSP										
8	011419Z	10.4N 151.6E	SAT							PCN 5	DMSP										
9	011419Z	10.5N 151.5E	SAT							PCN 6	DMSP										
10	012221Z	12.2N 150.3E	SAT			(12.0/2.0 /S /24HRS)				NOAA-2										(CONF 01)	
11	012237Z	11.9N 150.3E	SAT			(12.0/2.0 /D0.5/24HRS)				PCN 3	DMSP										
12	020119Z	12.5N 149.9E	SAT			(12.0/2.0 /D0.5/24HRS)				PCN 3	DMSP										
13	020435Z	12.0N 149.2E	P	5	5	1500	180	45	90	15	37	90	15	998	-	25	-	-	-	-	1
14	020930Z	12.8N 148.3E	P	5	5	700	90	50	10	60	3	10	60	-	306	11	-	-	-	-	1
15	021119Z	13.0N 148.4E	SAT							PCN 3	DMSP										
16	021119Z	12.9N 147.8E	SAT			(IR DATA)				PCN 4	DMSP										
17	021401Z	13.4N 147.6E	SAT							PCN 3	DMSP										
18	021401Z	13.4N 146.9E	SAT							PCN 4	DMSP										
19	021435Z	13.4N 147.4E	P	-	5	700	340	35	250	15	-	-	-	996	306	15	11	-	-	-	2
20	021620Z	13.4N 147.5E	P	-	-	700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
21	021818Z	13.6N 147.3E	P	10	5	700	320	30	-	-	-	-	-	992	301	13	-	-	-	-	3
22	022103Z	14.0N 147.1E	P	5	5	700	130	60	30	35	50	-	-	988	299	15	8	-	-	-	3
23	022219Z	13.9N 147.0E	SAT			(13.5/3.5 /D1.5/24HRS)				PCN 3	DMSP										
24	022219Z	14.2N 147.2E	SAT			(13.0/3.0 /S /24HRS)				PCN 3	UMSP										
25	022326Z	13.7N 146.2E	SAT			(13.5/3.5 /D1.5/24HRS)				NOAA-2											(CONF 01)
26	030101Z	14.1N 146.3E	SAT			(13.5/3.5 /D1.5/24HRS)				PCN 3	DMSP										
27	030351Z	14.5N 146.2E	P	5	10	700	260	28	170	25	40	170	45	991	301	14	9	-	-	-	3
28	030843Z	15.1N 145.5E	P	2	5	700	290	35	220	50	3	220	45	994	304	12	8	-	-	-	4
29	031100Z	15.5N 145.1E	SAT							PCN 3	DMSP										
30	031100Z	14.9N 144.8E	SAT							PCN 4	DMSP										
31	031342Z	15.5N 144.6E	SAT							PCN 3	DMSP										
32	031447Z	15.6N 144.9E	P	2	5	700	120	45	70	35	-	-	-	989	301	13	12	-	-	-	4
33	032200Z	16.1N 144.1E	SAT			(13.5/3.5-/S /24HRS)				PCN 3	DMSP										
34	032200Z	15.7N 144.2E	SAT			(13.0/3.0 /S /24HRS)				PCN 3	DMSP										
35	032243Z	16.1N 144.6E	SAT			(14.5/4.5 /D1.0/24HRS)				NOAA-2											(CONF 01)
36	040224Z	16.6N 144.2E	SAT			(13.5/3.5-/S /24HRS)				PCN 1	DMSP										
37	040224Z	16.1N 144.2E	SAT			(15.0/5.0 / /HRS)				PCN 1	DMSP										
38	040330Z	16.3N 144.2E	P	5	5	700	320	35	230	30	5	250	10	978	291	15	10	-	-	-	5
39	040830Z	17.0N 143.9E	P	5	5	700	150	60	130	60	50	60	12	973	285	17	13	CTRC	-	25	5
40	041041Z	17.1N 143.7E	SAT							PCN 1	DMSP										
41	041042Z	17.3N 143.5E	SAT							PCN 2	DMSP										
42	041505Z	17.5N 143.9E	SAT							PCN 1	DMSP										
43	041505Z	17.5N 143.9E	SAT							PCN 1	DMSP										
44	042048Z	18.1N 143.7E	P	3	3	700	280	90	220	20	90	240	15	963	278	17	12	CTRC	-	20	6
45	042324Z	18.5N 143.9E	SAT			(14.5/4.5-/D1.0/24HRS)				PCN 1	DMSP										
46	042324Z	18.4N 144.0E	SAT			(15.0/5.0 / /HRS)				PCN 1	DMSP										
47	042350Z	18.4N 143.9E	SAT			(15.5/5.5 /D1.0/24HRS)				NOAA-2											(CONF 01)
48	050206Z	19.1N 143.9E	SAT			(14.5/4.5-/D1.0/24HRS)				PCN 1	DMSP										
49	050206Z	19.0N 143.9E	SAT			(16.0/6.0-/D1.0/24HRS)				PCN 1	DMSP										
50	050242Z	19.1N 143.7E	P	4	3	700	280	100	280	15	100	280	15	963	278	19	12	CTRC	-	25	6
51	050850Z	20.4N 144.0E	P	5	2	700	260	90	190	35	80	240	10	965	275	23	16	CTRC	-	20	7
52	051024Z	20.3N 144.1E	SAT							PCN 1	DMSP										
53	051205Z	21.3N 144.2E	SAT							PCN 1	DMSP										
54	051446Z	21.6N 145.2E	SAT							PCN 3	DMSP										
55	051447Z	21.3N 144.9E	SAT							PCN 1	DMSP										
56	051510Z	21.4N 144.8E	P	10	2	700	330	60	240	30	-	-	-	969	282	19	11	CTRC	-	20	7
57	052302Z	23.7N 145.4E	SAT			(15.0/5.0 /W0.5/24HRS)				NOAA-2											(CONF 01)
58	052305Z	23.7N 145.7E	SAT			(14.5/4.5-/W /24HRS)				PCN 3	DMSP										
59	052305Z	23.4N 145.6E	SAT			(14.5/5.5 /W1.5/21HRS)				PCN 3	DMSP										
60	060147Z	24.3N 146.0E	SAT			(14.5/4.5-/W /24HRS)				PCN 3	DMSP										
61	060147Z	24.1N 146.0E	SAT			(14.5/5.5 /W1.5/21HRS)				PCN 3	DMSP										
62	060421Z	25.0N 145.8E	P	10	2	700	330	50	240	10	70	00	35	983	293	14	-	-	-	-	8
63	060445Z	25.9N 147.0E	P	10	2	700	240	80	150	70	4	300	20	984	294	14	-	-	-	-	8
64	061147Z	26.8N 148.4E	SAT							PCN 3	DMSP										
65	061147Z	26.5N 148.2E	SAT							PCN 3	DMSP										
66	061428Z	27.2N 149.1E	SAT							PCN 3	DMSP										
67	061428Z	27.0N 148.8E	SAT							PCN 3	DMSP										
68	062106Z	28.8N 151.3E	SAT			(14.5/4.5-/W /24HRS)				PCN 3	DMSP										
69	062247Z	28.9N 151.8E	SAT			(12.5/3.5-/W2.0/24HRS)				PCN 3	DMSP										
70	062247Z	29.0N 151.8E	SAT			(14.5/5.5 /W1.5/21HRS)				PCN 3	DMSP										
71	070128Z	29.6N 153.1E	SAT			(12.5/3.5-/W2.0/24HRS)				PCN 3	DMSP										
72	070128Z	29.3N 153.2E	SAT			(12.5/3.5 /W2.0/26HRS)				PCN 3	DMSP										
73	071129Z	31.2N 158.1E	SAT							PCN 3	DMSP										
74	071129Z	31.0N 158.1E	SAT							PCN 5	DMSP										

TROPICAL DEPRESSION 5  
FIX POSITIONS FOR CYCLONE NO. 5  
0600Z 07 JUN TO 0600Z 08 JUN

FIX NO.	TIME	POSIT	FIX CAT	ACCRY NAV-MET	FIX LVL	MAX OBS			MAX OBS			OBS MIN SLP	MIN 700MB HGT	FLT LVL TI/TO	EYE FORM	ORIEN- TATION	EYE DIA	POSIT OF RADAR	MSN NMBR
						FLT LVL	WIND DIR	WIND VEL	SFC WIND VEL	WIND DIR	WIND VEL								
1	060402Z	18.9N 113.5E	SAT			(11.0/1.0 /01.0/24HRS)			PCN 5	DMSP									
2	070112Z	19.9N 113.3E	SAT			(12.5/2.5 /01.5/21HRS)			PCN 3	DMSP									
3	070344Z	20.1N 112.8E	SAT			(12.5/2.5 /01.5/21HRS)			PCN 3	DMSP									
4	080325Z	21.0N 111.0E	SAT			(12.0/2.0 / / HRS)			PCN 5	DMSP									
5	080325Z	21.0N 111.3E	SAT			(12.0/2.5 /00.5/27HRS)			PCN 5	DMSP									
6	080325Z	20.6N 110.7E	SAT			(12.0/2.0 / / HRS)			PCN 5	DMSP									
7	081335Z	21.2N 109.7E	SAT						PCN 6	DMSP									
8	081606Z	20.8N 108.8E	SAT						PCN 6	DMSP									
9	081607Z	21.7N 109.5E	SAT						PCN 6	DMSP									

TYPHOON DINAH  
FIX POSITIONS FOR CYCLONE NO. 6  
0000Z 08 JUN TO 0600Z 14 JUN

FIX NO.	TIME	POSIT	FIX CAT	ACCRY NAV-MET	FIX LVL	MAX OBS			MAX OBS			OBS MIN SLP	MIN 700MB HGT	FLT LVL TI/TO	EYE FORM	ORIEN- TATION	EYE DIA	POSIT OF RADAR	MSN NMBR	
						FLT LVL	WIND DIR	WIND VEL	SFC WIND VEL	WIND DIR	WIND VEL									
1	042225Z	5.5N 146.5E	SAT			(11.0/1.0 /01.0/24HRS)			PCN 5	DMSP										
2	050239Z	6.7N 144.0E	SAT			(11.0/1.0 /01.0/24HRS)			PCN 5	DMSP										
3	051107Z	7.5N 143.3E	SAT						PCN 5	DMSP										
4	051329Z	8.0N 142.7E	SAT						PCN 5	DMSP										
5	052349Z	11.4N 139.2E	SAT			(12.5/2.5 /01.5/24HRS)			PCN 3	DMSP										
6	060221Z	11.2N 138.5E	SAT			(12.5/2.5 /01.5/24HRS)			PCN 5	DMSP										
7	060509Z	10.4N 138.8E	P	5	5	1500	260	25	210	15	25	10	15	1009	-	-	26	-	-	2
8	061049Z	11.1N 137.4E	SAT						PCN 6	DMSP										
9	061230Z	11.3N 137.3E	SAT						PCN 6	DMSP										
10	061502Z	12.0N 136.6E	SAT						PCN 5	DMSP										
11	062120Z	11.6N 135.8E	P	2	1	1500	120	25	60	110	25	360	30	1001	-	-	24	-	-	3
12	062330Z	12.1N 135.9E	SAT			(11.5/2.5 /01.0/24HRS)			PCN 3	DMSP										
13	062357Z	12.0N 135.0E	SAT			(13.0/4.0 /01.0/24HRS)			NOAA-2										(CONF 02)	
14	070113Z	12.3N 135.1E	P	2	1	700	110	35	30	12	30	-	-	-	-	-	-	-	3	
15	070202Z	12.5N 135.3E	SAT			(11.5/2.5 /01.0/24HRS)			PCN 5	DMSP										
16	071212Z	12.5N 132.7E	SAT						PCN 5	DMSP										
17	071444Z	12.7N 131.2E	SAT						PCN 5	DMSP										
18	072312Z	13.2N 128.4E	SAT			(12.5/2.5 /01.0/24HRS)			PCN 5	DMSP										
19	072312Z	13.1N 128.6E	SAT			(12.5/2.5 / / HRS)			PCN 5	DMSP										
20	072358Z	13.0N 128.2E	SAT			(14.0/4.0 /01.0/24HRS)			NOAA-2										(CONF 02)	
21	080114Z	13.0N 128.1E	P	15	2	1500	300	50	300	25	4	300	20	991	-	-	26	-	-	4
22	080325Z	12.8N 128.1E	SAT			(12.5/2.5 /01.0/24HRS)			PCN 3	DMSP										
23	080325Z	12.7N 128.1E	SAT			(13.0/3.0 / / HRS)			PCN 3	DMSP										
24	080330Z	13.0N 127.8E	P	15	2	1500	300	68	200	20	60	190	25	979	-	-	26	-	-	4
25	080415Z	13.4N 127.4E	P	5	2	700	130	40	80	32	50	80	42	986	300	20	-	-	-	5
26	081154Z	13.4N 126.5E	SAT						PCN 5	DMSP										
27	081435Z	13.8N 126.6E	P	5	3	700	310	40	190	85	-	-	989	300	15	-	-	-	5	
28	081607Z	13.6N 125.2E	SAT						PCN 6	DMSP										
29	082146Z	14.3N 125.6E	P	5	2	700	140	40	40	60	1	40	60	989	302	20	-	-	-	6
30	090020Z	14.5N 125.0E	SAT			(14.5/4.5 / / 24HRS)			NOAA-2										(CONF 02)	
31	090035Z	14.5N 125.3E	SAT			(13.5/3.5 /00.5/21HRS)			PCN 3	DMSP										
32	090307Z	14.9N 124.8E	SAT			(14.0/4.0 /01.5/28HRS)			PCN 3	DMSP										
33	091158Z	14.3N 123.4E	P	5	5	700	60	55	330	70	-	-	-	294	-	-	14	-	-	7
34	091317Z	14.4N 122.9E	SAT						PCN 6	DMSP										
35	091415Z	14.3N 123.5E	LRDM																14.4N 122.6E	
36	091435Z	14.9N 123.5E	LRDM																16.4N 120.6E	
37	091500Z	14.7N 123.2E	LRDR																14.4N 120.6E	
38	091506Z	14.5N 122.6E	LRDM																15.2N 122.6E	
39	091523Z	14.6N 123.1E	P	5	5	700	40	70	340	525	-	-	977	291	-	-	15	-	-	7
40	091548Z	15.0N 123.4E	SAT						PCN 1	DMSP										
41	091548Z	14.8N 122.9E	SAT						PCN 6	DMSP										
42	091548Z	15.0N 123.3E	SAT						PCN 3	DMSP										
43	091600Z	14.8N 123.0E	LRDR																14.4N 122.6E	
44	091608Z	14.5N 122.5E	LRDR																15.2N 120.6E	
45	091638Z	14.5N 122.6E	LRDM																15.2N 120.6E	
46	091705Z	14.7N 122.3E	LRDM																15.2N 120.6E	
47	091808Z	14.7N 122.3E	LRDM																15.2N 120.6E	
48	091838Z	14.7N 122.3E	LRDR																15.2N 120.6E	
49	091938Z	14.3N 122.0E	LRDR																15.2N 120.6E	
50	091945Z	15.0N 122.6E	LRDM																14.4N 122.6E	

TYPHOON DINAH  
 FIX POSITIONS FOR CYCLONE NO. 6  
 0000Z 08 JUN TO 0600Z 14 JUN

FIX NO.	TIME	POSIT	FIX CAT	ACCRY NAV-MET	FIX LVL DIR	MAX OBS				MAX OBS			OBS MIN SLP	MIN 700MB HGT	FLT LVL TL/TO	EYE FORM	ORIEN- TATION	EYE DIA	POSIT OF HADAR	MSM NMHM	
						FLY	LVL	WIND	BRG	VEL	DIR	WIND									RNG
51	091945Z	15.1N 122.7E	LHDR																		
52	092000Z	15.0N 122.6E	LHDR																		
53	092038Z	15.2N 122.6E	LHDR																		
54	092045Z	15.0N 122.6E	P	2	2	700	350	58	250	28	40	350	10	974	287	14	-	ELIP	SW-NE	40x20	8
55	092100Z	15.0N 122.6E	LHDR																		
56	092100Z	15.2N 122.8E	LHDR																		
57	092335Z	15.5N 122.5E	LHDR																		
58	100000Z	15.6N 122.3E	LHDR																		
59	100008Z	15.3N 122.3E	LHDR																		
60	100017Z	15.5N 122.4E	SAT																		
61	100017Z	15.4N 122.5E	SAT																		
62	100017Z	15.4N 122.0E	SAT																		
63	100030Z	15.3N 122.5E	LHDR																		
64	100108Z	15.9N 122.6E	LHDR																		
65	100128Z	15.5N 122.7E	SAT																		
66	100130Z	15.4N 122.6E	LHDR																		
67	100235Z	15.6N 122.2E	P	2	5	700	70	68	320	50	5	10	20	974	287	14	-	CTRC		20	8
68	100248Z	15.7N 121.6E	SAT																		
69	100482Z	15.8N 121.9E	SAT																		
70	100305Z	15.7N 121.8E	LHDR																		
71	100330Z	15.7N 121.8E	LHDR																		
72	100400Z	15.8N 121.9E	LHDR																		
73	100500Z	15.8N 121.8E	LHDR																		
74	100700Z	16.2N 120.8E	LHDR																		
75	100931Z	16.4N 120.4E	LHDR																		
76	101005Z	16.5N 120.3E	LHDR																		
77	101035Z	16.6N 120.1E	LHDR																		
78	101100Z	17.3N 119.9E	LHDR																		
79	101200Z	17.0N 120.0E	LHDR																		
80	101259Z	16.8N 119.6E	SAT																		
81	101259Z	16.6N 119.2E	SAT																		
82	101292Z	17.4N 118.5E	SAT																		
83	101302Z	17.8N 119.0E	SAT																		
84	102227Z	16.3N 118.0E	P	15	8	700	-	-	-	-	-	50	20	90	986	297	13	-	-	-	9
85	102359Z	16.8N 116.8E	SAT																		
86	102359Z	16.7N 117.6E	SAT																		
87	102359Z	16.2N 117.6E	SAT																		
88	110335Z	16.5N 117.1E	P	10	5	700	-	-	-	-	-	50	60	120	-	295	12	-	-	-	9
89	110409Z	16.8N 117.2E	SAT																		
90	110455Z	16.5N 116.7E	P	8	5	700	180	60	110	120	60	110	120	978	293	18	-	-	-	-	11
91	111240Z	16.9N 116.1E	SAT																		
92	111240Z	16.7N 115.6E	SAT																		
93	111550Z	16.6N 115.0E	P	3	7	700	120	40	200	150	-	-	-	290	13	-	-	-	-	-	12
94	111653Z	16.7N 115.3E	SAT																		
95	112050Z	17.0N 113.8E	P	10	30	500	170	80	90	100	60	90	80	978	-	-	-	-	-	-	12
96	120122Z	17.1N 113.9E	SAT																		
97	120124Z	17.7N 114.4E	SAT																		
98	120152Z	17.5N 115.5E	SAT																		
99	120352Z	17.5N 114.1E	SAT																		
100	120915Z	16.5N 113.6E	P	5	5	700	80	80	70	40	15	70	40	-	288	14	-	-	-	-	13
101	121030Z	18.6N 113.0E	P	5	3	700	-	-	-	-	-	-	-	289	14	-	CTRC		10	-	13
102	121633Z	19.6N 111.6E	SAT																		
103	130104Z	20.0N 110.4E	SAT																		
104	130106Z	20.2N 110.8E	SAT																		
105	130334Z	20.1N 109.3E	SAT																		
106	130334Z	19.9N 109.5E	SAT																		
107	131345Z	20.3N 108.1E	SAT																		
108	131615Z	20.8N 107.5E	SAT																		
109	140046Z	20.1N 105.3E	SAT																		

TROPICAL STORM EMMA  
FIX POSITIONS FOR CYCLONE NO. 7  
0600Z 13 JUN TO 0600Z 18 JUN

FIX NO.	TIME	POSII	FIX CAT	ACQNY NAV-MET	FIX LVL	MAX OBS FLT LVL WIND			MAX OBS SFC WIND			OBS MIN SLP	MIN 700MB HGT	FLT LVL TI/TO	EYE FORM	ORIEN-TATION	EYE DIA	MUSIT OF RADAR	MSN NMBR		
						DIR	VEL	BRG	VEL	DIR	BRG										
1	100107Z	2.0N 149.0E	SAT			(T1.0/1.0 /D1.0/21HRS)			PCN 5	UMSP											
2	101117Z	3.1N 147.4E	SAT						PCN 6	UMSP											
3	101348Z	3.8N 147.3E	SAT						PCN 5	UMSP											
4	102217Z	4.2N 147.0E	SAT			(T1.5/1.5 /D0.5/21HRS)			PCN 5	UMSP											
5	110230Z	5.4N 144.0E	SAT			(T1.5/1.5 /D0.5/21HRS)			PCN 5	UMSP											
6	111059Z	6.3N 143.2E	SAT						PCN 5	UMSP											
7	112341Z	8.0N 142.0E	SAT			(T1.5/1.5 /S /25HRS)			PCN 5	UMSP											
8	120211Z	8.5N 141.7E	SAT			(T1.5/1.5 /S /25HRS)			PCN 3	UMSP											
9	121452Z	10.8N 137.9E	SAT						PCN 5	UMSP											
10	122313Z	12.3N 136.8E	SAT			(T2.5/2.5 /D0.5/25HRS)			NOAA-2		(CONF 01)										
11	122322Z	11.4N 136.3E	SAT			(T2.5/2.5 /D1.0/24HRS)			PCN 5	UMSP											
12	122322Z	12.4N 136.4E	SAT			(T3.0/3.0 / / HRS)			PCN 3	UMSP											
13	130143Z	11.2N 135.7E	P	10	2	1500	140	27	50	13	30	50	13	1001	-	26	25	-	-	-	1
14	130152Z	12.3N 135.6E	SAT			(T2.5/2.5 /D1.0/24HRS)			PCN 5	UMSP											
15	130152Z	12.4N 134.9E	SAT			(T3.0/3.0 / / HRS)			PCN 5	UMSP											
16	130248Z	11.4N 135.9E	P	10	2	1500	110	30	360	38	30	360	38	1001	-	27	25	-	-	-	1
17	131204Z	13.4N 132.4E	SAT						PCN 6	UMSP											
18	131344Z	13.6N 131.8E	SAT						PCN 5	UMSP											
19	131344Z	13.3N 132.1E	SAT						PCN 5	UMSP											
20	131555Z	12.3N 132.2E	P	-	-	700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
21	132130Z	13.0N 131.6E	P	10	10	700	10	35	310	40	25	300	25	998	310	15	9	-	-	-	3
22	132304Z	13.0N 130.0E	SAT			(T3.0/3.0 /D0.5/24HRS)			PCN 3	UMSP											
23	132304Z	13.5N 130.4E	SAT			(T3.0/3.0 /S /24HRS)			PCN 3	UMSP											
24	140315Z	14.4N 129.5E	SAT			(T3.0/3.0 /D0.5/24HRS)			PCN 3	UMSP											
25	140444Z	14.3N 130.0E	P	10	5	1500	180	30	90	15	40	350	10	1001	-	-	-	-	-	-	4
26	140830Z	14.7N 129.3E	P	5	5	700	70	45	300	50	25	90	20	998	308	-	-	-	-	-	4
27	141145Z	15.2N 127.7E	SAT						PCN 5	UMSP											
28	141145Z	15.2N 127.1E	SAT						PCN 5	UMSP											
29	141540Z	15.2N 128.0E	P	8	8	700	30	45	330	40	-	-	-	998	307	12	-	-	-	-	5
30	141557Z	15.3N 127.1E	SAT						PCN 5	UMSP											
31	141557Z	15.6N 127.6E	SAT						PCN 3	UMSP											
32	142050Z	15.6N 127.6E	P	1	2	700	20	45	300	30	4	270	20	994	305	15	-	-	-	-	5
33	142336Z	16.0N 126.6E	SAT			(T3.5/3.5 /S /24HRS)			NOAA-2		(CONF 01)										
34	150027Z	15.9N 126.6E	SAT			(T3.5/3.5 /D0.5/25HRS)			PCN 3	UMSP											
35	150257Z	16.0N 125.8E	SAT			(T3.5/3.5 /D0.5/25HRS)			PCN 3	UMSP											
36	150257Z	16.0N 126.1E	SAT			(T3.5/3.5 /D0.5/25HRS)			PCN 3	UMSP											
37	150855Z	16.8N 125.6E	P	5	5	700	20	70	270	15	5	230	10	990	304	15	13	CTRC	-	15	6
38	151309Z	16.6N 124.7E	SAT			(IR DATA )			PCN 5	UMSP											
39	151535Z	17.1N 124.5E	P	5	10	700	200	80	110	20	-	-	-	995	305	12	-	-	-	-	6
40	151548Z	16.6N 125.0E	SAT						PCN 5	UMSP											
41	151938Z	16.2N 124.4E	SAT						PCN 5	UMSP											
42	152117Z	17.6N 124.5E	P	5	5	700	30	35	130	20	55	90	20	994	305	14	-	-	-	-	7
43	160009Z	17.4N 124.5E	SAT			(T3.5/3.5 /S /24HRS)			PCN 3	UMSP											
44	160009Z	18.1N 124.4E	SAT			(T3.0/4.0 /W1.0/24HRS)			PCN 3	UMSP											
45	160009Z	17.6N 124.1E	SAT			(T3.5/3.5 /S /22HRS)			PCN 5	UMSP											
46	160230Z	18.0N 124.2E	P	10	5	700	30	40	10	50	4	330	20	995	305	14	-	-	-	-	7
47	160238Z	17.8N 124.2E	SAT			(T3.5/3.5 /S /24HRS)			PCN 3	UMSP											
48	160238Z	17.9N 124.2E	SAT			(T3.5/3.5 /S /22HRS)			PCN 5	UMSP											
49	160835Z	18.8N 123.7E	P	3	2	700	60	40	40	20	50	90	30	988	299	17	-	-	-	-	8
50	161250Z	18.6N 124.4E	SAT						PCN 3	UMSP											
51	161250Z	18.0N 124.2E	SAT						PCN 5	UMSP											
52	161445Z	19.2N 123.5E	P	5	15	700	280	55	180	30	50	10	70	995	304	14	-	-	-	-	8
53	161520Z	18.8N 123.8E	SAT						PCN 5	UMSP											
54	161920Z	17.6N 123.9E	SAT						PCN 5	UMSP											
55	162351Z	19.9N 124.2E	SAT			(T3.5/3.5 /S /24HRS)			PCN 3	UMSP											
56	162351Z	19.8N 124.1E	SAT			(T4.0/4.0 /D0.5/24HRS)			PCN 3	UMSP											
57	162559Z	19.0N 125.0E	SAT			(T3.5/3.5 /S /23HRS)			NOAA-2		(CONF 01)										
58	170220Z	20.4N 124.7E	SAT			(T3.5/3.5 /S /24HRS)			PCN 3	UMSP											
59	170220Z	20.2N 124.8E	SAT			(T2.5/3.0 /W0.5/26HRS)			PCN 3	UMSP											
60	170220Z	20.4N 124.6E	SAT			(T4.0/4.0 /D0.5/24HRS)			PCN 4	UMSP											
61	170230Z	21.0N 123.8E	P	10	5	700	130	50	50	40	50	00	60	-	-	10	14	-	-	-	9
62	170830Z	21.4N 125.3E	P	13	7	700	190	50	110	40	40	150	60	-	-	10	13	-	-	-	9
63	171232Z	21.9N 125.8E	SAT						PCN 5	UMSP											
64	171232Z	21.8N 125.9E	SAT						PCN 5	UMSP											
65	171501Z	22.5N 126.2E	SAT						PCN 5	UMSP											
66	171501Z	22.6N 126.7E	SAT						PCN 5	UMSP											
67	171501Z	22.7N 126.6E	SAT						PCN 5	UMSP											
68	172333Z	26.0N 128.6E	SAT			(T2.0/3.0 /W1.5/24HRS)			PCN 3	UMSP											
69	172433Z	26.0N 128.6E	SAT			(T2.0/3.0 /W2.0/24HRS)			PCN 3	UMSP											
70	180201Z	26.4N 129.1E	SAT			(T2.0/3.0 /W1.5/24HRS)			PCN 3	UMSP											
71	180201Z	26.6N 129.0E	SAT			(T2.0/2.5 /W0.5/24HRS)			PCN 3	UMSP											
72	180201Z	26.4N 128.9E	SAT			(T2.0/3.0 /W2.0/24HRS)			PCN 3	UMSP											
73	181214Z	29.0N 131.3E	SAT						PCN 5	UMSP											
74	181214Z	31.0N 134.1E	SAT						PCN 5	UMSP											
75	181443Z	30.0N 132.3E	SAT						PCN 6	UMSP											
76	190019Z	33.0N 139.5E	SAT			(T1.5/2.0 /W0.5/25HRS)			NOAA-2		(CONF 02)										

TROPICAL STORM FREDA  
FIX POSITIONS FOR CYCLONE NO. 8  
0000Z 21 JUN TO 1200Z 22 JUN

FIX NO.	TIME	POSIT	FIX CAT	ACCHY NAV-MET	FIX LVL	MAX OBS			MAX OBS SFC WIND		OBS MIN SLP	MIN 700MB HGT	FLT LVL TI/TO	EYE FORM	ORIENTION	EYE DIA	POSIT OF RADAR	MSN NMBR
						DIR	VEL	BRG	RNG	VEL								
1	162209Z	18.0N 146.9E	SAT	(T1.0/1.0 /0 /24HRS)					PCN 5	DMSP								
2	162209Z	17.8N 146.9E	SAT	(T1.0/1.0 / / HRS)					PCN 3	DMSP								
3	170220Z	18.3N 146.2E	SAT	(T1.0/1.0 /0 /24HRS)					PCN 5	DMSP								
4	170220Z	17.7N 147.4E	SAT	(T1.0/1.0 / / HRS)					PCN 6	DMSP								
5	172332Z	18.5N 143.3E	SAT	(T1.5/1.5 /00.5/24HRS)					PCN 5	DMSP								
6	172332Z	18.8N 143.3E	SAT	(T1.5/1.5 /00.5/24HRS)					PCN 5	DMSP								
7	180201Z	19.5N 142.4E	SAT	(T1.5/1.5 /00.5/24HRS)					PCN 3	DMSP								
8	180201Z	19.3N 141.6E	SAT	(T1.5/1.5 /00.5/24HRS)					PCN 3	DMSP								
9	181443Z	19.7N 142.2E	SAT	(IR DATA)					PCN 5	DMSP								
10	182314Z	21.4N 142.7E	SAT	(IR DATA)					PCN 5	DMSP								
11	190142Z	21.7N 142.0E	SAT	(IR DATA)					PCN 5	DMSP								
12	191156Z	22.3N 142.4E	SAT	(IR DATA)					PCN 4	DMSP								
13	192256Z	23.2N 144.9E	SAT	(IR DATA)					PCN 5	DMSP								
14	200124Z	25.5N 145.5E	SAT	(IR DATA)					PCN 3	DMSP								
15	201137Z	25.8N 148.5E	SAT	(IR DATA)					PCN 3	DMSP								
16	202238Z	26.0N 151.3E	SAT	(T2.5/2.5 / / HRS)					PCN 3	DMSP								
17	210105Z	26.2N 151.9E	SAT	(T2.5/2.5 / / HRS)					PCN 3	DMSP								
18	210105Z	26.0N 151.9E	SAT	(T2.0/2.0 / / HRS)					PCN 4	DMSP								
19	210516Z	25.7N 152.8E	P	5 3 700 220 55 -					5 220 25 989 301 15 -	CTRC						5	1	
20	211119Z	24.9N 154.9E	SAT	(IR DATA)					PCN 5	DMSP								
21	211119Z	24.9N 155.0E	SAT	(IR DATA)					PCN 4	DMSP								
22	211347Z	25.0N 155.6E	SAT	(IR DATA)					PCN 3	DMSP								
23	211347Z	24.9N 154.8E	SAT	(IR DATA)					PCN 6	DMSP								
24	212220Z	25.3N 158.1E	SAT	(T2.0/2.5 /00.5/24HRS)					PCN 3	DMSP								
25	212220Z	24.9N 158.5E	SAT	(T1.5/2.0 /00.5/24HRS)					PCN 4	DMSP								
26	220047Z	25.3N 159.1E	SAT	(T2.0/2.5 /00.5/24HRS)					PCN 3	DMSP								
27	220047Z	25.1N 159.2E	SAT	(T1.5/2.0 /00.5/24HRS)					PCN 4	DMSP								
28	230028Z	30.2N 172.8E	SAT	(IR DATA)					PCN 3	DMSP								

TYPHOON GILDA  
FIX POSITIONS FOR CYCLONE NO. 9  
0600Z 30 JUN TO 0000Z 07 JUL

FIX NO.	TIME	POSIT	FIX CAT	ACCHY NAV-MET	FIX LVL	MAX OBS			MAX OBS SFC WIND		OBS MIN SLP	MIN 700MB HGT	FLT LVL TI/TO	EYE FORM	ORIENTION	EYE DIA	POSIT OF RADAR	MSN NMBR
						DIR	VEL	BRG	RNG	VEL								
1	251006Z	17.3N 160.0E	SAT	(IR DATA)					PCN 6	DMSP								
2	260114Z	17.8N 156.2E	SAT	(IR DATA)					PCN 5	DMSP								
3	260948Z	18.0N 154.5E	SAT	(IR DATA)					PCN 6	DMSP								
4	261356Z	18.0N 154.1E	SAT	(IR DATA)					PCN 5	DMSP								
5	262230Z	18.0N 151.8E	SAT	(T1.0/1.0 / / HRS)					PCN 5	DMSP								
6	262230Z	18.0N 151.8E	SAT	(T1.5/1.5 / / HRS)					PCN 5	DMSP								
7	270055Z	18.1N 151.0E	SAT	(IR DATA)					PCN 5	DMSP								
8	270055Z	18.0N 150.9E	SAT	(IR DATA)					PCN 6	DMSP								
9	271500Z	18.5N 145.0E	SAT	(IR DATA)					PCN 6	DMSP								
10	272211Z	18.1N 148.6E	SAT	(T1.5/1.5 /00.5/24HRS)					PCN 4	DMSP								
11	280218Z	18.1N 147.9E	SAT	(IR DATA)					PCN 4	DMSP								
12	281053Z	17.5N 146.8E	SAT	(IR DATA)					PCN 6	DMSP								
13	281500Z	17.7N 145.0E	SAT	(IR DATA)					PCN 5	DMSP								
14	282153Z	17.8N 143.4E	SAT	(T2.0/2.0 /00.5/24HRS)					PCN 6	DMSP								
15	282352Z	18.0N 143.0E	SAT	(T1.5/1.5 /00.5/24HRS)					NOAA-2	(CONF 02)								
16	282352Z	18.7N 143.1E	SAT	(IR DATA)					PCN 5	DMSP								
17	290200Z	18.8N 141.6E	SAT	(IR DATA)					PCN 4	DMSP								
18	290200Z	18.5N 141.6E	SAT	(T1.5/1.5 / / HRS)					PCN 5	DMSP								
19	290300Z	17.8N 141.4E	P	2 3 700 - - -					- 1009 311 9 - - - -								1	
20	291216Z	18.2N 140.0E	SAT	(IR DATA)					PCN 5	DMSP								
21	291216Z	19.3N 139.2E	SAT	(IR DATA)					PCN 6	DMSP								
22	291442Z	19.7N 139.7E	SAT	(IR DATA)					PCN 5	DMSP								
23	291442Z	19.5N 139.7E	SAT	(IR DATA)					PCN 6	DMSP								
24	292316Z	21.0N 136.7E	SAT	(IR DATA)					PCN 3	DMSP								
25	292316Z	19.4N 135.4E	SAT	(T1.5/1.5 /S /21HRS)					PCN 5	DMSP								
26	292345Z	21.5N 136.5E	SAT	(T2.5/2.5 /D1.0/24HRS)					NOAA-2	(CONF 02)								
27	300141Z	20.8N 135.8E	SAT	(IR DATA)					PCN 3	DMSP								
28	300141Z	20.4N 135.7E	SAT	(IR DATA)					PCN 5	DMSP								
29	301158Z	20.3N 134.9E	SAT	(IR DATA)					PCN 3	DMSP								
30	301341Z	19.5N 135.0E	P	5 3 700 80 30 360					25 - - 990 301 17 11 - - - -								3	
31	301423Z	20.2N 134.7E	SAT	(IR DATA)					PCN 3	DMSP								
32	301423Z	20.6N 135.5E	SAT	(IR DATA)					PCN 4	DMSP								
33	302150Z	19.8N 134.3E	P	3 2 700 150 30 70					100 25 70 100 990 301 14 11 - - - -							4		
34	302258Z	20.0N 134.0E	SAT	(T4.0/4.0 /D2.0/24HRS)					PCN 3	DMSP								
35	302258Z	19.7N 134.0E	SAT	(T3.0/3.0 /D1.5/24HRS)					PCN 3	DMSP								
36	302259Z	20.0N 135.0E	SAT	(T3.5/3.5 /D1.0/24HRS)					NOAA-2	(CONF 02)								
37	010235Z	19.4N 134.1E	P	5 2 700 340 40 270					60 30 270 60 983 296 14 11 - - - -							4		
38	010304Z	19.2N 134.0E	SAT	(IR DATA)					PCN 3	DMSP								
39	011140Z	19.4N 133.9E	SAT	(IR DATA)					PCN 4	DMSP								
40	011140Z	19.6N 133.3E	SAT	(IR DATA)					PCN 4	DMSP								
41	011237Z	18.5N 133.5E	SAT	(IR DATA)					NOAA-2	(CONF 01)								
42	011546Z	19.6N 133.4E	SAT	(IR DATA)					PCN 5	DMSP								
43	011546Z	19.4N 133.6E	SAT	(IR DATA)					PCN 4	DMSP								
44	012240Z	19.7N 132.2E	SAT	(IR DATA)					PCN 3	DMSP								
45	012240Z	19.4N 132.4E	SAT	(T4.0/4.0 /D1.0/24HRS)					PCN 4	DMSP								
46	020020Z	19.4N 132.3E	P	5 2 700 180 70 90					70 100 30 70 971 287 17 12 CTIC							50	6	
47	020021Z	19.9N 132.4E	SAT	(IR DATA)					PCN 3	DMSP								
48	020021Z	20.0N 132.2E	SAT	(IR DATA)					PCN 3	DMSP								
49	020051Z	20.0N 132.5E	SAT	(T5.0/5.0 /D1.0/26HRS)					NOAA-2	(CONF 01)								
50	02046Z	19.8N 132.0E	SAT	(T4.5/4.5 /D0.5/24HRS)					PCN 1	DMSP								
51	020320Z	19.7N 132.0E	P	5 1 700 190 65 110					40 70 130 75 967 282 18 14 CTIC							30	6	
52	021121Z	20.2N 130.7E	SAT	(IR DATA)					PCN 4	DMSP								
53	021127Z	20.1N 131.5E	SAT	(IR DATA)					PCN 6	DMSP								
54	021217Z	20.0N 130.8E	P	10 5 700 180 75 60					35 - - 961 277 18 14 CTIC							30	7	
55	021303Z	20.4N 130.8E	SAT	(IR DATA)					PCN 2	DMSP								
56	021527Z	20.6N 130.6E	SAT	(IR DATA)					PCN 1	DMSP								
57	021528Z	20.9N 130.6E	SAT	(IR DATA)					PCN 2	DMSP								
58	021546Z	20.1N 130.7E	P	20 2 700 190 75 110					35 - - 961 277 17 14 ETIP				N-S	25A20		7		
59	022137Z	21.0N 129.8E	P	2 3 700 180 70 70					12 80 110 12 963 278 15 13 CTIC							20	8	
60	022351Z	21.5N 128.8E	SAT	(T5.5/5.5 /D0.5/24HRS)					NOAA-2	(CONF 01)								
61	030003Z	21.2N 129.9E	SAT	(T5.5/5.5 /D1.0/24HRS)					PCN 1	DMSP								

TYPHOON GILDA  
FIX POSITIONS FOR CYCLONE NO. 9  
0600Z 30 JUN TO 0000Z 07 JUL

FIX NO.	TIME	POSIT	FIX CAT	ACCHY NAV-MET	FIX LVL	MAX OBS DIR	FLT VEL	WIND BRG	WIND RNG	MAX OBS SFC WIND VEL	WIND BRG	WIND RNG	OBS MIN SLP	MTN /DOOMB	FLT LV/TO	EYE FORM	ORIEN- TATION	EYE DIA	POSIT OF RADAR	MSN NMBR
62	030003Z	21.0N 129.8E	SAT	(15.0/5.0 /D1.0/25HRS)						PCN 3	DMSF									
63	030227Z	21.5N 129.2E	SAT	(IR DATA)						PCN 1	DMSF									
64	030227Z	21.6N 129.3E	SAT	(IR DATA)						PCN 1	DMSF									
65	030232Z	21.5N 129.3E	P	2 3 700	360	70	290	60	60	40	956	272	17	13					18	8
66	030935Z	22.7N 128.4E	P	5 5 700	130	65	50	30	70	160	15	951	267	18					25	9
67	031233Z	22.0N 128.5E	SAT	(IR DATA)						NOAA-2										
68	031245Z	22.8N 128.4E	SAT	(IR DATA)						PCN 1	DMSF									
69	031245Z	23.2N 128.3E	SAT	(IR DATA)						PCN 2	DMSF									
70	031245Z	22.6N 128.3E	SAT	(IR DATA)						PCN 1	DMSF									
71	031430Z	23.2N 127.9E	P	5 5 700	260	50	200	20				954	270	16					20	9
72	031509Z	23.3N 127.8E	SAT	(IR DATA)						PCN 1	DMSF									
73	031509Z	23.6N 127.9E	SAT	(IR DATA)						PCN 2	DMSF									
74	031700Z	23.6N 127.8E	LRDR	- 45//3																24.8N 125.3E
75	031800Z	23.7N 127.7E	LRDR	- 4//3																24.8N 125.3E
76	031815Z	23.8N 127.6E	LRDR	- 15 DEG SPIRAL OVERLAY																26.4N 127.8E
77	031843Z	23.8N 127.2E	LRDR	- 15 DEG SPIRAL OVERLAY																26.4N 127.8E
78	031900Z	23.8N 127.6E	LRDR	- 9592																26.2N 127.8E
79	031945Z	23.9N 127.5E	LRDR	- 6000 FIX																26.2N 127.7E
80	032000Z	23.9N 127.5E	LRDR	- 41712																26.2N 127.8E
81	032115Z	24.0N 127.5E	P	5 2 700	290	85	180	30				952	269	18	16				18	10
82	032240Z	24.2N 127.3E	LRDR	- 6000 FIX																26.4N 127.8E
83	032300Z	24.5N 127.3E	LRDR	- 95/42																24.3N 124.2E
84	032300Z	24.3N 127.3E	LRDR	- 10612																26.2N 127.8E
85	032300Z	24.4N 127.3E	LRDR	- 12773																24.8N 125.3E
86	032300Z	24.3N 127.3E	LRDR	- 6000 FIX																26.4N 127.8E
87	032320Z	24.3N 127.2E	LRDR	- 6000 FIX, 15 DEG SPIRAL OVERLAY																26.4N 127.8E
88	032330Z	24.4N 127.3E	LRDR	- 6000 FIX																26.2N 127.7E
89	032345Z	24.4N 127.1E	SAT	(15.5/5.5 /S /24HRS)						PCN 1	DMSF									
90	032345Z	24.4N 127.2E	SAT	(16.0/6.0 /D1.0/24HRS)						PCN 1	DMSF									
91	032457Z	24.4N 127.1E	LRDR	- 6000 FIX, 15 DEG SPIRAL OVERLAY, 20 PERCENT WALL CLOUD																26.4N 127.8E
92	040005Z	24.3N 127.4E	LRDR	-																26.2N 127.7E
93	040015Z	24.5N 127.2E	LRDR	- 6000 FIX, CIRCULAR EYE 15 NM DIAM, 50 PERCENT WALL CLOUD																26.4N 127.8E
94	040030Z	24.5N 127.1E	LRDR	- 6000 FIX																26.2N 127.7E
95	040040Z	24.2N 127.6E	LRDR	-																26.2N 127.7E
96	040045Z	24.7N 127.1E	LRDR	- 6000 FIX, CIRCULAR EYE 15 NM DIAM, 50 PERCENT WALL CLOUD																26.4N 127.8E
97	040100Z	24.7N 127.1E	LRDR	- 95112																24.3N 124.2E
98	040100Z	24.8N 127.1E	LRDR	- 10673																24.8N 125.3E
99	040115Z	24.7N 126.9E	LRDR	- CIRCULAR EYE 12 NM DIAM, 60 PERCENT WALL CLOUD																26.4N 127.8E
100	040145Z	24.8N 126.8E	LRDR	- 6000 FIX, CIRCULAR EYE 12 NM DIAM, 50 PERCENT WALL CLOUD																26.4N 127.8E
101	040200Z	24.8N 126.9E	LRDR	- 12673																24.8N 125.3E
102	040200Z	24.8N 126.9E	LRDR	- 10512																26.2N 127.8E
103	040209Z	24.9N 126.8E	SAT	(IR DATA)						PCN 1	DMSF									
104	040209Z	25.0N 126.4E	SAT	(IR DATA)						PCN 1	DMSF									
105	040215Z	24.7N 126.7E	LRDR	- FAIR FIX, CIRCULAR EYE 12 NM DIAM, 40 PERCENT WALL CLOUD																26.4N 127.8E
106	040230Z	24.8N 126.8E	LRDR	- 6000 FIX																26.2N 127.7E
107	040245Z	24.8N 126.7E	LRDR	- CIRCULAR EYE 12 NM DIAM, 60 PERCENT WALL CLOUD																26.4N 127.8E
108	040300Z	24.8N 127.0E	P	5 2 700	230	85	100	35	5	150	20	947	265	18	15				15	10
109	040300Z	24.9N 126.7E	LRDR	- 12673																24.8N 125.3E
110	040300Z	24.9N 126.7E	LRDR	- 45//3																24.3N 124.2E
111	040315Z	24.8N 126.6E	LRDR	- 6000 FIX, CIRCULAR EYE 15 NM DIAM, 70 PERCENT WALL CLOUD																26.4N 127.8E
112	040330Z	24.8N 126.7E	LRDR	- 6000 FIX																26.2N 127.7E
113	040345Z	24.8N 126.6E	LRDR	- 6000 FIX, CIRCULAR EYE 15 NM DIAM, 60 PERCENT WALL CLOUD																26.4N 127.8E
114	040350Z	24.7N 126.4E	SAT	(15.5/5.5- / HRS)						PCN 1	DMSF									
115	040400Z	24.8N 126.6E	LRDR	- 10412																26.2N 127.8E
116	040400Z	24.8N 126.7E	LRDR	- 55//3																24.3N 124.2E
117	040400Z	24.9N 126.7E	LRDR	- 12623																24.8N 125.3E
118	040415Z	24.9N 126.6E	LRDR	- 6000 FIX, CIRCULAR EYE 12 NM DIAM, 75 PERCENT WALL CLOUD																26.4N 127.8E
119	040430Z	24.9N 126.6E	LRDR	- 6000 FIX																26.2N 127.7E
120	040445Z	24.9N 126.6E	LRDR	- 6000 FIX, CIRCULAR EYE 12 NM DIAM, 75 PERCENT WALL CLOUD																26.4N 127.8E
121	040500Z	24.9N 126.8E	LRDR	- 12613																24.8N 125.3E
122	040500Z	24.9N 126.7E	LRDR	- 10412																26.2N 127.8E
123	040500Z	24.9N 126.7E	LRDR	- 55//3																24.3N 124.2E
124	040515Z	24.9N 126.6E	LRDR	- 6000 FIX, CIRCULAR EYE 12 NM DIAM, 70 PERCENT WALL CLOUD																26.4N 127.8E
125	040545Z	24.9N 126.6E	LRDR	- 6000 FIX, CIRCULAR EYE 12 NM DIAM, 60 PERCENT WALL CLOUD																26.4N 127.8E
126	040600Z	25.1N 126.8E	LRDR	- 12633																24.8N 125.3E
127	040600Z	25.0N 126.8E	LRDR	- 5//3																24.3N 124.2E
128	040615Z	24.9N 126.8E	LRDR	- FAIR FIX, CIRCULAR EYE 10 NM DIAM, 50 PERCENT WALL CLOUD																26.4N 127.8E
129	040630Z	25.0N 126.8E	LRDR	- 6000 FIX																26.2N 127.7E
130	040645Z	25.1N 126.8E	LRDR	- FAIR FIX, CIRCULAR EYE 10 NM DIAM, 50 PERCENT WALL CLOUD																26.4N 127.8E
131	040700Z	25.1N 126.9E	LRDR	- 12613																24.8N 125.3E
132	040700Z	25.1N 126.8E	LRDR	- 10532																26.2N 127.8E
133	040700Z	25.1N 126.9E	LRDR	- 55//3																24.3N 124.2E
134	040730Z	25.2N 126.7E	LRDR	- 6000 FIX																26.2N 127.7E
135	040745Z	25.3N 127.0E	LRDR	- 6000 FIX, CIRCULAR EYE 10 NM DIAM, 70 PERCENT WALL CLOUD																



TROPICAL STORM HARRIET  
FIX POSITIONS FOR CYCLONE NO. 10  
0600Z 15 JUL TO 0600Z 18 JUL

FIX NO.	TIME	POSIT	FIX CAT	ACCRY NAV-MET	FIX LVL	MAX OBS FLT LVL WIND			MAX OBS SFC WIND			OBS MIN SLP	MIN 700MB MGT	FLT LVL TI/TO	EYE FOHM	ORIE-N TATION	EYE DIA	POSIT OF RADAR	MSK NMHR
						DIR	VEL	BRG	VEL	BRG	RNG								
1	122242Z	10.8N 148.4E	SAT	(T1.0/1.0 / / HRS)					PCN 5	DMSP									
2	122330Z	12.0N 149.0E	SAT	(T1.5/1.5 /D1.0/24HRS)					NOAA-2		(CONF 01)								
3	130103Z	11.1N 148.3E	SAT	(IR DATA)					PCN 5	DMSP									
4	131037Z	13.0N 147.0E	SAT	(IR DATA)					NOAA-2		(CONF 02)								
5	131123Z	12.3N 146.7E	SAT	(IR DATA)					PCN 5	DMSP									
6	131345Z	12.7N 146.2E	SAT	(IR DATA)					PCN 6	DMSP									
7	132224Z	14.2N 145.9E	SAT	(T2.0/2.0 /D1.0/24HRS)					PCN 6	DMSP									
8	140222Z	15.3N 144.2E	SAT	(IR DATA)					PCN 5	DMSP									
9	141105Z	15.1N 142.7E	SAT	(IR DATA)					PCN 3	DMSP									
10	141107Z	15.0N 142.5E	SAT	(IR DATA)					NOAA-2		(CONF 01)								
11	141508Z	16.0N 141.9E	SAT	(IR DATA)					PCN 3	DMSP									
12	141508Z	16.0N 141.9E	SAT	(IR DATA)					PCN 3	DMSP									
13	142323Z	16.9N 139.1E	SAT	(T2.5/2.5 /S /24HRS)					NOAA-2		(CONF 02)								
14	142324Z	17.3N 138.5E	SAT	(IR DATA)					NOAA-2		(CONF 02)								
15	142347Z	17.8N 140.3E	SAT	(T2.0/2.0 / / HRS)					PCN 5	DMSP									
16	142347Z	17.5N 140.7E	SAT	(T2.0/2.0 /S /24HRS)					PCN 5	DMSP									
17	150207Z	17.7N 139.1E	SAT	(IR DATA)					PCN 5	DMSP									
18	150207Z	17.5N 139.5E	SAT	(IR DATA)					PCN 5	DMSP									
19	150430Z	17.8N 139.2E	P	10 5 1500	130	45	60	10	40	60	1001	25	23	-	-	-	-	-	1
20	150930Z	18.7N 138.4E	P	10 1 1500	50	48	320	25	40	20	996	-	25	23	-	-	-	-	1
21	151203Z	19.0N 137.8E	SAT	(IR DATA)					NOAA-2		(CONF 01)								
22	151203Z	19.0N 138.0E	SAT	(IR DATA)					PCN 5	DMSP									
23	151228Z	18.8N 137.9E	SAT	(IR DATA)					PCN 5	DMSP									
24	151228Z	19.3N 137.9E	SAT	(IR DATA)					PCN 5	DMSP									
25	151449Z	19.9N 136.9E	SAT	(IR DATA)					PCN 3	DMSP									
26	151449Z	19.9N 136.9E	SAT	(IR DATA)					PCN 5	DMSP									
27	151555Z	19.6N 136.3E	P	5 10 700	200	28	70	40	-	-	1009	313	11	-	-	-	-	-	2
28	152040Z	20.5N 136.1E	P	3 2 700	130	35	30	30	4	310	10	997	308	15	11	ELIP	SW-NL	30A15	2
29	152329Z	21.0N 135.7E	SAT	(T3.0/3.0 /D1.0/24HRS)					PCN 3	DMSP									
30	152329Z	21.0N 135.8E	SAT	(T3.0/3.0 /D1.0/24HRS)					PCN 3	DMSP									
31	160016Z	21.0N 135.0E	SAT	(T2.5/3.0 /W0.5/24HRS)					NOAA-2		(CONF 01)								
32	160017Z	21.0N 134.5E	SAT	(T1.5/2.0 /W1.0/24HRS)					NOAA-2		(CONF 01)								
33	160149Z	21.6N 135.1E	SAT	(IR DATA)					PCN 3	DMSP									
34	160149Z	21.5N 135.0E	SAT	(IR DATA)					PCN 3	DMSP									
35	160351Z	22.0N 134.9E	P	5 3 700	250	30	170	65	50	150	15	998	309	15	12	-	-	-	3
36	160952Z	23.1N 134.2E	P	5 2 700	240	30	160	38	4	100	38	998	309	13	-	-	-	-	3
37	161210Z	22.6N 132.6E	SAT	(IR DATA)					PCN 1	DMSP									
38	161210Z	22.8N 133.5E	SAT	(IR DATA)					PCN 5	DMSP									
39	161431Z	23.0N 132.3E	SAT	(IR DATA)					PCN 5	DMSP									
40	161431Z	23.2N 132.6E	SAT	(IR DATA)					PCN 5	DMSP									
41	161612Z	24.2N 133.3E	SAT	(IR DATA)					PCN 5	DMSP									
42	161700Z	24.1N 132.8E	P	20 3 700	190	30	120	25	-	-	-	1001	310	13	-	-	-	-	4
43	162118Z	24.8N 132.7E	P	5 2 700	220	40	150	100	40	60	40	1002	311	13	-	-	-	-	4
44	162310Z	25.1N 133.1E	SAT	(T2.0/3.0 /W1.0/24HRS)					PCN 3	DMSP									
45	162310Z	25.0N 133.0E	SAT	(T2.0/3.0 /W1.0/24HRS)					PCN 3	DMSP									
46	170111Z	26.0N 133.4E	SAT	(T1.5/2.0 /S /25HRS)					NOAA-2		(CONF 01)								
47	170312Z	26.1N 133.0E	SAT	(IR DATA)					PCN 3	DMSP									
48	170312Z	26.1N 132.7E	SAT	(IR DATA)					PCN 3	DMSP									
49	171152Z	27.8N 133.2E	SAT	(IR DATA)					PCN 6	DMSP									
50	171152Z	27.4N 132.8E	SAT	(IR DATA)					PCN 3	DMSP									
51	171554Z	28.5N 134.1E	SAT	(IR DATA)					PCN 3	DMSP									
52	171850Z	27.0N 132.0E	SAT	(IR DATA)					NOAA-2		(CONF 01)								
53	172252Z	29.2N 135.0E	SAT	(T1.0/2.0 /W1.0/24HRS)					PCN 3	DMSP									
54	172252Z	29.1N 135.0E	SAT	(T1.0/2.0 /W1.0/24HRS)					PCN 3	DMSP									
55	180253Z	29.2N 135.8E	SAT	(IR DATA)					PCN 3	DMSP									
56	180253Z	29.0N 135.7E	SAT	(IR DATA)					PCN 3	DMSP									
57	181134Z	29.7N 138.1E	SAT	(IR DATA)					PCN 3	DMSP									

TROPICAL STORM JEAN  
FIX POSITIONS FOR CYCLONE NO. 11  
0900Z 17 JUL TO 0600Z 20 JUL

FIX NO.	TIME	POSIT	FIX CAT	ACCRY NAV-MET	FIX LVL	MAX OBS FLT LVL WIND			MAX OBS SFC WIND			OBS MIN SLP	MIN 700MB MGT	FLT LVL TI/TO	EYE FOHM	ORIE-N TATION	EYE DIA	POSIT OF RADAR	MSK NMHR
						DIR	VEL	BRG	VEL	BRG	RNG								
1	150207Z	16.8N 132.3E	SAT	(T1.0/1.0 / / HRS)					PCN 3	DMSP									
2	150207Z	16.8N 132.8E	SAT	(T1.5/1.5 / / HRS)					PCN 5	DMSP									
3	151228Z	17.3N 129.7E	SAT	(IR DATA)					PCN 5	DMSP									
4	151449Z	18.2N 128.5E	SAT	(IR DATA)					PCN 5	DMSP									
5	151449Z	18.3N 128.3E	SAT	(IR DATA)					PCN 5	DMSP									
6	152329Z	17.7N 129.3E	SAT	(T1.5/1.5 /D0.5/24HRS)					PCN 3	DMSP									
7	152329Z	17.8N 129.4E	SAT	(T2.0/2.0 /D0.5/24HRS)					PCN 3	DMSP									
8	160018Z	17.5N 129.0E	SAT	(T1.5/1.5 /D1.0/24HRS)					NOAA-2		(CONF 01)								
9	160330Z	17.8N 128.6E	SAT	(IR DATA)					PCN 5	DMSP									
10	160330Z	18.6N 128.5E	SAT	(IR DATA)					PCN 5	DMSP									
11	160751Z	18.3N 128.8E	P	5 15 1500	210	25	130	25	25	130	20	1004	-	20	-	-	-	-	1
12	161210Z	18.5N 128.4E	SAT	(IR DATA)					PCN 5	DMSP									
13	161210Z	19.0N 127.6E	SAT	(IR DATA)					PCN 5	DMSP									
14	161612Z	19.7N 128.0E	SAT	(IR DATA)					PCN 3	DMSP									
15	162310Z	19.7N 127.3E	SAT	(T2.0/2.0 /D0.5/24HRS)					PCN 3	DMSP									
16	162310Z	19.8N 127.3E	SAT	(T3.0/3.0 /D1.0/24HRS)					PCN 3	DMSP									
17	170111Z	20.0N 126.8E	SAT	(T2.0/2.0 /D0.5/24HRS)					NOAA-2		(CONF 01)								
18	170312Z	19.7N 126.9E	SAT	(IR DATA)					PCN 3	DMSP									
19	170312Z	19.9N 126.9E	SAT	(IR DATA)					PCN 3	DMSP									
20	171152Z	20.2N 126.1E	SAT	(IR DATA)					PCN 5	DMSP									
21	171152Z	20.4N 125.9E	SAT	(IR DATA)					PCN 6	DMSP									
22	171152Z	19.7N 125.6E	SAT	(IR DATA)					NOAA-2		(CONF 02)								
23	171441Z	20.3N 126.3E	P	10 10 700	40	30	320	50	-	-	-	999	307	13	11	-	-	-	3
24	171554Z	20.5N 126.2E	SAT	(IR DATA)					PCN 3	DMSP									
25	171554Z	20.6N 126.1E	SAT	(IR DATA)					PCN 3	DMSP									
26	172330Z	21.2N 125.3E	P	10 2 700	120	35	60	30	4	60	45	998	307	12	-	-	-	-	4
27	180013Z	20.8N 125.0E	SAT	(T3.0/3.0 /D0.5/24HRS)					NOAA-2		(CONF 01)								
28	180034Z	21.2N 125.3E	SAT	(T3.0/3.0 / / HRS)					PCN 3	DMSP									
29	180253Z	21.2N 124.5E	SAT	(T3.5/3.5 /D1.5/24HRS)					PCN 3	DMSP									
30	180253Z	21.2N 123.9E	SAT	(T3.5/3.5 /D0.5/24HRS)					PCN 3	DMSP									

TROPICAL STORM JEAN  
 FIX POSITIONS FOR CYCLONE NO. 11  
 0000Z 17 JUL to 0600Z 20 JUL

FIX NO.	TIME	POSIT	FIX CAT	ACQY	FIA MET	FIA LVL	MAX OBS				OBS MIN SLP	MIN WGT	FLT LVL	EYE FORM	ORIENT	EYE DIA	POSIT OF MAUW	MSA NMOM
							DIR	VEL	BKG	HNG								
31	180900Z	21.4N 123.1E	LMDR	-	6///0											24.3N 124.2E		
32	181000Z	21.4N 123.4E	LMDR	-	7///1											24.8N 125.3E		
33	181100Z	22.0N 123.7E	LMDR	-	8///0											24.3N 124.2E		
34	181100Z	22.0N 123.7E	LMDR	-	7///1											24.8N 125.3E		
35	181200Z	22.1N 123.5E	LMDR	-	55//0											24.3N 124.2E		
36	181200Z	22.1N 123.0E	LMDR	-	7///1											24.8N 125.3E		
37	181210Z	22.1N 123.9E	M	5	2	700	140	45	60	30	-	-	995	307	14	11		5
38	181255Z	22.6N 124.0E	SAT	(IR DATA	)													
39	181300Z	22.2N 123.4E	LMDR	-	7///1											24.8N 125.3E		
40	181300Z	22.2N 123.2E	LMDR	-	6///1											24.3N 124.2E		
41	181315Z	22.4N 124.0E	SAT	(IR DATA	)													
42	181315Z	22.5N 123.5E	SAT	(IR DATA	)													
43	181400Z	22.2N 123.2E	LMDR	-	7///1											24.8N 125.3E		
44	181400Z	22.3N 123.1E	LMDR	-	6///1											24.3N 124.2E		
45	181450Z	22.8N 123.1E	LMDR	-	55//3											24.8N 121.6E		
46	181500Z	22.4N 123.0E	LMDR	-	5///1											24.3N 124.2E		
47	181500Z	22.4N 123.0E	LMDR	-	7///1											24.8N 125.3E		
48	181525Z	22.4N 123.1E	M	5	2	700	120	55	340	70	-	-	995	305	14	13		5
49	181535Z	22.6N 122.8E	SAT	(IR DATA	)													
50	181535Z	22.6N 122.9E	SAT	(IR DATA	)													
51	181600Z	22.6N 122.9E	LMDR	-	7///1											24.8N 125.3E		
52	181600Z	22.6N 123.0E	LMDR	-	5///1											24.3N 124.2E		
53	181700Z	22.7N 122.8E	LMDR	-	7///1											24.8N 125.3E		
54	181800Z	22.8N 123.3E	LMDR	-	45//13											24.8N 121.6E		
55	181800Z	22.9N 122.8E	LMDR	-	6///1											24.3N 124.2E		
56	181800Z	23.1N 122.8E	LMDR	-	7///1											24.8N 125.3E		
57	181900Z	23.1N 122.8E	LMDR	-	5///1											24.3N 124.2E		
58	182000Z	23.3N 122.6E	LMDR	-	6///1											24.3N 124.2E		
59	182000Z	23.3N 122.7E	LMDR	-	7///1											24.8N 125.3E		
60	182100Z	23.3N 122.7E	LMDR	-	7///1											24.8N 125.3E		
61	182100Z	23.3N 122.5E	LMDR	-	5///1											24.3N 124.2E		
62	182200Z	23.4N 122.5E	LMDR	-	6///1											24.3N 124.2E		
63	182300Z	23.6N 122.4E	LMDR	-	6///1											24.3N 124.2E		
64	182305Z	23.6N 123.0E	LMDR	-	GOOD FIX											24.8N 121.6E		
65	190005Z	23.8N 122.8E	LMDR	-	GOOD FIX, ELLIPTICAL EYE E-W											24.3N 120.6E		
66	190015Z	23.7N 122.6E	SAT	(IR DATA	)													
67	190015Z	23.7N 122.4E	SAT	(14.0/4.0 / / HRS)														
68	190015Z	23.8N 122.4E	SAT	(14.5/4.5-/01.0/24HRS)														
69	190100Z	23.9N 122.5E	LMDR	-	6///3											24.3N 124.2E		
70	190106Z	23.5N 122.0E	SAT	(13.0/3.0 /S /24HRS)														
71	190120Z	24.1N 122.5E	LMDR	-	FAIR FIX, TEAR DRMP EYE											24.8N 122.0E		
72	190200Z	24.0N 122.3E	LMDR	-	5///2											24.8N 125.3E		
73	190220Z	24.2N 122.3E	LMDR	-	ELLIPTICAL EYE 34/70											24.8N 122.0E		
74	190235Z	24.5N 122.3E	SAT	(14.0/4.0-/00.5/24HRS)														
75	190235Z	24.1N 122.1E	SAT	(IR DATA	)													
76	190320Z	24.3N 122.2E	LMDR	-	CIRCULAR EYE, 45 NM DIAM													
77	190400Z	24.7N 122.2E	LMDR	-	6///1											24.8N 122.0E		
78	190400Z	24.7N 122.0E	LMDR	-	5///1											24.3N 124.2E		
79	190400Z	24.6N 122.1E	LMDR	-	6///1											24.8N 125.3E		
80	190420Z	24.6N 122.1E	LMDR	-	CIRCULAR EYE, 22 NM DIAM, OPEN TO NW-S											25.0N 121.6E		
81	190500Z	24.9N 122.2E	LMDR	-	6///2											24.8N 122.0E		
82	190500Z	24.9N 121.8E	LMDR	-	47///											24.3N 124.2E		
83	190800Z	25.5N 122.0E	LMDR	-	6///1											24.8N 125.3E		
84	191257Z	25.4N 122.5E	SAT	(IR DATA	)											24.3N 124.2E		
85	191257Z	26.5N 121.7E	SAT	(IR DATA	)													
86	191517Z	27.6N 121.6E	SAT	(IR DATA	)													
87	191517Z	27.2N 121.0E	SAT	(IR DATA	)													
88	192357Z	30.1N 122.1E	SAT	(11.5/2.5-/13.0/24HRS)														
89	200005Z	30.1N 122.0E	SAT	(12.5/2.5 /NO.5/24HRS)														
90	200216Z	31.0N 122.3E	SAT	(IR DATA	)													



TYPHOON IVY  
FIX POSITIONS FOR CYCLONE NO. 12  
0600Z 17 JUL TO 1800Z 22 JUL

FIX NO.	TIME	POS [ ]	FIX CAT	ACCRY NAV-MET	FIX LVL	MAX OBS				MAX OBS			OBS MIN SLP	MIN T00MB MGT	FLT LVL TI/TO	EYE FORM	ORIEN- TATION	EYE DIA	POSIT OF RADAR	MSN NMHR	
						DIR	VEL	BRG	HNG	SFC WIND VEL	BRG	RNG									
101	200808Z	16.1N 120.3E	LMDR	-	FAIR	FIX, POSSIBLF	15	UEG	SPIRAL	OVEMLAY								15.2N 120.6E			
102	200938Z	16.3N 119.9E	LMDR	-	POOR	FIX, POSSIBLF	15	UEG	SPIRAL	OVEMLAY								15.2N 120.6E			
103	201009Z	16.3N 120.0E	LMDR	-	FAIR	FIX, POSSIBLF	15	UEG	SPIRAL	OVEMLAY								15.2N 120.6E			
104	201239Z	16.7N 119.0E	SAT	(IR DATA	)			PCN 5	DMSP												
105	201239Z	16.6N 118.4E	SAT	(IR DATA	)			PCN 5	DMSP												
106	201247Z	17.0N 119.0E	SAT	(IR DATA	)			NOAA-2					(CONF 03)								
107	201625Z	17.3N 118.3E	P	1	15	700	160	80	40	13	-	-	989	298	12	11	-	-	-	7	
108	201639Z	17.7N 118.2E	SAT	(IR DATA	)			PCN 5	DMSP												
109	202215Z	17.6N 117.0E	P	5	2	700	270	50	110	35	60	00	30	975	291	12	11	CTMC	35	7	
110	202338Z	17.5N 116.9E	SAT	(IR DATA	)			PCN 5	DMSP												
111	202339Z	18.0N 117.1E	SAT	(T4.5/4.5 / S1.0/24HRS)				PCN 3	DMSP												
112	210103Z	18.0N 116.0E	SAT	(T5.0/5.0 / D0.5/24HRS)				NOAA-2					(CONF 01)								
113	210120Z	17.9N 116.5E	SAT	(T5.0/5.0 / D0.5/24HRS)				PCN 1	DMSP												
114	210339Z	18.1N 115.9E	SAT	(T5.0/5.0 / D0.5/24HRS)				PCN 1	DMSP												
115	210339Z	18.4N 116.1E	SAT	(T4.5/4.5 / / HRS)				PCN 1	DMSP												
116	210900Z	18.7N 114.9E	LMDR	-	2080/														22.3N 114.2E		
117	211035Z	18.9N 114.9E	P	5	2	700	140	100	70	40	100	70	55	967	281	15	10	ELIP	SW-NE	25X23	8
118	211200Z	18.9N 114.4E	LMDR	-	2777														22.3N 114.2E		
119	211344Z	20.0N 115.0E	SAT	(IR DATA	)			NOAA-2					(CONF 02)								
120	211402Z	19.4N 114.2E	SAT	(IR DATA	)			PCN 5	DMSP												
121	211435Z	19.2N 114.2E	P	5	2	700	-	-	-	-	-	-	965	279	17	-	ELIP	E-W	30X27	8	
122	211500Z	19.2N 114.0E	LMDR	-	2077														22.3N 114.2E		
123	211621Z	19.6N 113.9E	SAT	(IR DATA	)			PCN 5	DMSP												
124	212100Z	19.8N 113.2E	LMDR	-	2777														22.3N 114.2E		
125	220000Z	20.2N 112.9E	LMDR	-	1057														22.3N 114.2E		
126	220100Z	20.2N 112.8E	SAT	(T5.5/5.5 / D0.5/24HRS)				PCN 1	DMSP												
127	220300Z	20.4N 112.7E	LMDR	-	1057														22.3N 114.2E		
128	220321Z	20.4N 112.4E	SAT	(T5.5/5.5 / D0.5/24HRS)				PCN 1	DMSP												
129	220321Z	20.3N 112.1E	SAT	(T6.0/6.0 / / HRS)				PCN 1	DMSP												
130	220600Z	20.9N 112.2E	LMDR	-	1083														22.3N 114.2E		
131	220900Z	21.3N 111.9E	LMDR	-	1083														22.3N 114.2E		
132	221200Z	21.6N 111.3E	LMDR	-	1075														22.3N 114.2E		
133	221244Z	21.8N 111.5E	SAT	(IR DATA	)			NOAA-2													
134	221602Z	21.4N 111.0E	SAT	(IR DATA	)			PCN 5	DMSP												
135	221602Z	21.8N 110.9E	SAT	(IR DATA	)			PCN 5	DMSP												
136	221602Z	22.8N 111.3E	SAT	(IR DATA	)			PCN 1	DMSP												

TROPICAL STORM KIM  
FIX POSITIONS FOR CYCLONE NO. 13  
0000Z 23 JUL TO 0600Z 24 JUL

FIX NO.	TIME	POS [ ]	FIX CAT	ACCRY NAV-MET	FIX LVL	MAX OBS				MAX OBS			OBS MIN SLP	MIN T00MB MGT	FLT LVL TI/TO	EYE FORM	ORIEN- TATION	EYE DIA	POSIT OF RADAR	MSN NMHR
						DIR	VEL	BRG	HNG	SFC WIND VEL	BRG	RNG								
1	202157Z	17.6N 105.1E	SAT	(T1.0/1.0 / / HRS)				PCN 5	DMSP											
2	210016Z	18.5N 105.4E	SAT	(IR DATA	)			PCN 5	DMSP											
3	211039Z	19.7N 104.4E	SAT	(IR DATA	)			PCN 5	DMSP											
4	211258Z	19.9N 104.3E	SAT	(IR DATA	)			PCN 5	DMSP											
5	212139Z	20.9N 104.8E	SAT	(T1.0/1.0 / S / 24HRS)				PCN 3	DMSP											
6	221021Z	20.8N 105.3E	SAT	(IR DATA	)			PCN 5	DMSP											
7	222107Z	23.2N 107.1E	SAT	(T3.0/3.0 / D2.0/24HRS)				NOAA-2					(CONF 01)							
8	222120Z	23.0N 107.3E	SAT	(T1.5/1.5 / D0.5/24HRS)				PCN 6	DMSP											
9	222339Z	23.0N 105.3E	SAT	(T1.5/1.5 / / HRS)				PCN 5	DMSP											
10	230120Z	23.3N 106.1E	SAT	(IR DATA	)			PCN 5	DMSP											
11	230950Z	24.5N 109.0E	SAT	(IR DATA	)			NOAA-2					(CONF 02)							
12	231022Z	23.5N 108.0E	SAT	(IR DATA	)			PCN 6	DMSP											
13	232102Z	25.8N 107.9E	SAT	(T2.0/2.0 / S0.5/24HRS)				PCN 3	DMSP											
14	232201Z	26.0N 108.4E	SAT	(T3.5/3.5 / S / 24HRS)				NOAA-2					(CONF 01)							
15	232300Z	26.2N 107.7E	SAT	(T3.0/3.0 / D0.5/24HRS)				PCN 4	DMSP											
16	240102Z	26.7N 107.2E	SAT	(IR DATA	)			PCN 3	DMSP											
17	240102Z	26.8N 107.2E	SAT	(T2.0/2.0 / / HRS)				PCN 4	DMSP											
18	240102Z	25.5N 106.7E	SAT	(T2.0/2.0 / D0.5/24HRS)				PCN 3	DMSP											
19	240320Z	27.2N 106.3E	P	13	7	700	180	65	30	25	65	30	25	989	301	10	-	-	-	2
20	240447Z	26.8N 106.0E	SAT	(IR DATA	)			NOAA-2					(CONF 02)							
21	241344Z	26.5N 103.4E	SAT	(IR DATA	)			PCN 6	DMSP											

TROPICAL STORM LUCY  
FIX POSITIONS FOR CYCLONE NO. 14  
0000Z 09 AUG TO 0600Z 11 AUG

FIX NO.	TIME	POSIT	FIX CAT	ACCRV NAV-MET	FIX LVL	MAX OBS FLT LVL WIND				MAX OBS SFC WIND			OBS MIN SLP	MIN T00MB MGT	FLI LVL T1/T0	EYE FOHM	ORIENT- TATION	EYE DIA	POSIT OF HAUAH	MSN NMBR
						DIR	VLL	BHG	RNG	VLL	BHG	RNG								
1	040242Z	12.2N 134.0E	SAT	(11.0/1.0 / / HRS)																
2	041128Z	14.0N 130.9E	SAT	(IR DATA )																
3	041309Z	13.2N 126.3E	SAT	(IR DATA )																
4	041524Z	13.6N 129.2E	SAT	(IR DATA )																
5	041524Z	13.2N 129.0E	SAT	(IR DATA )																
6	050009Z	16.6N 124.5E	SAT	(11.5/1.5 / / HRS)																
7	050009Z	16.0N 124.3E	SAT	(11.5/1.5 /00.5/24HRS)																
8	050225Z	16.4N 123.8E	SAT	(IR DATA )																
9	051251Z	14.9N 122.9E	SAT	(IR DATA )																
10	051505Z	15.0N 122.6E	SAT	(IR DATA )																
11	052451Z	16.6N 121.6E	SAT	(11.0/1.5 /00.5/24HRS)																
12	060522Z	11.0N 134.9E	SAT	(IR DATA )																(CONF 03)
13	080310Z	19.6N 118.6E	SAT	(11.0/1.0 / / HRS)																
14	081338Z	18.0N 116.3E	SAT	(IR DATA )																
15	081551Z	17.4N 117.9E	SAT	(IR DATA )																
16	081551Z	17.7N 117.8E	SAT	(IR DATA )																
17	090038Z	18.2N 117.2E	SAT	(11.0/1.0 / / HRS)																
18	090115Z	19.0N 118.0E	SAT	(12.0/2.0 /01.0/24HRS)																(CONF 02)
19	090251Z	18.3N 117.9E	SAT	(11.5/1.5 / / HRS)																
20	090251Z	18.7N 117.4E	SAT	(11.5/1.5 /00.5/24HRS)																
21	090305Z	18.9N 119.2E	P	15 5 1500 50 25 330																
22	090433Z	18.6N 118.9E	SAT	(IR DATA )																
23	090955Z	19.7N 119.6E	P	10 5 700 230 50 170																
24	091319Z	20.2N 119.3E	SAT	(IR DATA )																
25	091431Z	20.7N 119.9E	P	3 20 700 - - -																
26	091532Z	20.4N 119.2E	SAT	(IR DATA )																
27	091533Z	21.0N 119.6E	SAT	(IR DATA )																
28	092253Z	20.2N 119.4E	P	1 5 1500 240 40 160 150																
29	100019Z	22.2N 119.2E	SAT	(13.0/3.0 /02.0/24HRS)																
30	100019Z	21.9N 118.9E	SAT	(11.5/1.5 /S /21HRS)																
31	100019Z	22.5N 119.4E	SAT	(12.5/2.5 /01.0/21HRS)																
32	100208Z	23.5N 120.3E	SAT	(13.0/3.0 /01.0/25HRS)																(CONF 02)
33	100442Z	22.8N 118.9E	SAT	(IR DATA )																
34	100414Z	22.5N 120.1E	SAT	(13.0/3.0 / / HRS)																
35	101257Z	23.0N 118.9E	SAT	(IR DATA )																(CONF 02)
36	101301Z	23.7N 119.5E	SAT	(IR DATA )																
37	101301Z	23.5N 119.2E	SAT	(IR DATA )																
38	101301Z	22.8N 119.7E	SAT	(IR DATA )																
39	110001Z	23.5N 118.6E	SAT	(12.0/2.0 /00.5/24HRS)																
40	110001Z	23.6N 118.6E	SAT	(12.0/2.5 /00.5/24HRS)																
41	110109Z	23.8N 118.0E	SAT	(12.5/3.0 /00.5/24HRS)																(CONF 01)
42	110356Z	24.4N 119.1E	SAT	(13.0/3.0 /S /28HRS)																
43	111243Z	24.8N 119.2E	SAT	(IR DATA )																
44	111243Z	24.6N 118.7E	SAT	(IR DATA )																
45	111243Z	24.9N 118.7E	SAT	(IR DATA )																
46	112343Z	25.7N 117.9E	SAT	(IR DATA )																

TYPHOON MARY  
FIX POSITIONS FOR CYCLONE NO. 15  
0600Z 11 AUG TO 0600Z 26 AUG

FIX NO.	TIME	POSIT	FIX CAT	ACCRV NAV-MET	FIX LVL	MAX OBS FLT LVL WIND				MAX OBS SFC WIND			OBS MIN SLP	MIN T00MB MGT	FLI LVL T1/T0	EYE FOHM	ORIENT- TATION	EYE DIA	POSIT OF HAUAH	MSN NMBR
						DIR	VLL	BHG	RNG	VLL	BHG	RNG								
1	090110Z	14.0N 148.0E	SAT	(11.0/1.0 / / HRS)																
2	092238Z	15.3N 150.3E	SAT	(11.5/1.5 /00.5/21HRS)																
3	100051Z	15.2N 150.8E	SAT	(IR DATA )																
4	101333Z	15.5N 150.6E	SAT	(IR DATA )																
5	102419Z	15.4N 150.2E	SAT	(11.5/1.5 /S /24HRS)																
6	110214Z	15.5N 150.3E	SAT	(IR DATA )																
7	110745Z	15.7N 151.1E	P	10 10 1500 100 35 20																
8	110840Z	15.6N 150.9E	P	10 10 1500 100 35 20																
9	111101Z	14.8N 151.3E	SAT	(IR DATA )																
10	111101Z	14.7N 151.1E	SAT	(IR DATA )																
11	111314Z	14.9N 151.2E	SAT	(IR DATA )																
12	111430Z	16.5N 150.1E	P	8 10 700 50 25 330																
13	112201Z	17.7N 154.3E	SAT	(13.0/3.0 /01.5/24HRS)																
14	112215Z	17.5N 154.2E	SAT	(12.5/2.5 /01.0/23HRS)																(CONF 01)
15	120155Z	18.2N 154.0E	SAT	(IR DATA )																
16	120155Z	17.3N 153.8E	SAT	(12.0/2.0 / / HRS)																
17	120234Z	18.1N 152.3E	P	5 3 700 160 45 120																
18	120530Z	18.1N 152.2E	P	5 5 700 160 45 20																
19	120920Z	19.3N 151.5E	P	3 6 700 40 35 290																
20	121043Z	19.8N 153.5E	SAT	(IR DATA )																
21	121043Z	20.4N 153.9E	SAT	(IR DATA )																
22	121055Z	19.0N 154.0E	SAT	(IR DATA )																(CONF 01)
23	121437Z	20.1N 152.9E	SAT	(IR DATA )																
24	121437Z	20.2N 153.8E	SAT	(IR DATA )																
25	121458Z	19.4N 150.0E	P	3 6 700 80 62 360																
26	122100Z	19.9N 149.6E	P	5 4 700 230 25 230																
27	122143Z	22.2N 151.9E	SAT	(14.0/4.0 /01.0/24HRS)																
28	122143Z	24.8N 151.4E	SAT	(13.5/3.5 /01.5/20HRS)																
29	122310Z	21.5N 151.5E	SAT	(13.5/3.5 /01.0/25HRS)																(CONF 01)
30	130137Z	22.8N 151.2E	SAT	(IR DATA )																
31	130137Z	22.4N 151.4E	SAT	(IR DATA )																
32	130320Z	20.0N 147.2E	P	- - 700 - - -																
33	130830Z	21.1N 148.5E	P	8 20 1500 270 20 170																
34	130955Z	22.0N 147.5E	SAT	(IR DATA )																
35	131025Z	24.0N 149.8E	SAT	(IR DATA )																(CONF 01)
36	131025Z	24.0N 150.4E	SAT	(IR DATA )																
37	131418Z	25.2N 149.1E	SAT	(IR DATA )																
38	131418Z	24.8N 148.1E	SAT	(IR DATA )																
39	132406Z	22.5N 146.8E	SAT	(12.5/3.5 /01.5/24HRS)																
40	132306Z	22.4N 146.9E	SAT	(11.0/1.0 / / HRS)																
41	132406Z	25.3N 144.9E	SAT	(12.0/3.0 /01.5/24HRS)																
42	140118Z	23.5N 145.0E	SAT	(IR DATA )																
43	140118Z	23.5N 145.4E	SAT	(IR DATA )																
44	140558Z	24.3N 144.9E	P	10 10 700 20 60 310																
45	140910Z	24.7N 143.8E	P	10 5 700 260 50 180																



TYPHOON MARY  
FIX POSITIONS FOR CYCLONE NO. 15  
0600Z 11 AUG TO 0600Z 26 AUG

FIX NO.	TIME	POSIT	FIX CAT	ACCR MET	FIX LVL	FLT DIR	MAX OBS VEL	MAX OBS BKG RNG	MAX OBS SFC WIND VEC	UBS MIN SLP	MIN /00MB HGT	FLT LVL	EYE FORM	UMIEN- TATION	EYE DIA	POSIT UP	MSA	MMB
144	230408Z	27.0N 124.6E	SAT	(IM DATA					PCN 5	DMSF								
145	231012Z	27.8N 126.6E	SAT	(IM DATA					PCN 4	DMSF								
146	231012Z	27.5N 125.8E	SAT	(IM DATA					PCN 5	DMSF								
147	231012Z	27.5N 125.8E	SAT	(IM DATA					PCN 5	DMSF								
148	231130Z	28.0N 127.0E	SAT	(IM DATA					NOAA-2		(CONF 01)							
149	231227Z	28.0N 126.4E	SAT	(IM DATA					PCN 3	DMSF								
150	231227Z	27.7N 126.1E	SAT	(IM DATA					PCN 5	DMSF								
151	231617Z	27.3N 126.4E	SAT	(IM DATA					PCN 5	DMSF								
152	231617Z	27.3N 126.8E	SAT	(IM DATA					PCN 3	DMSF								
153	231640Z	26.8N 126.6E	LMDR	- POOR FIX, 10 DEG SPIRAL OVEMLAY												26.4N	127.8E	
154	231800Z	26.7N 126.7E	LMDR	- POOR FIX, 10 DEG SPIRAL OVEMLAY												26.4N	127.8E	
155	231850Z	26.7N 126.8E	LMDR	- FAIR FIX, POSSIBLY EYE, 10 DEG SPIRAL OVEMLAY												26.4N	127.8E	
156	232000Z	27.0N 126.6E	LMDR	- 6///												26.1N	127.8E	
157	232100Z	27.0N 126.7E	LMDR	- 6///												26.1N	127.8E	
158	232113Z	27.0N 127.0E	SAT	(IM DATA					PCN 5	DMSF								
159	232200Z	26.9N 126.9E	LMDR	- 6///												26.1N	127.8E	
160	232300Z	26.9N 127.2E	LMDR	- 6///												26.1N	127.8E	
161	232327Z	26.8N 127.7E	SAT	(12.5/2.5 / / HMS)					PCN 3	DMSF								
162	232327Z	26.8N 127.3E	SAT	(13.0/3.0 /01.5/2+HMS)					PCN 1	DMSF								
163	240100Z	26.8N 127.4E	LMDR	- 6///												26.4N	129.5E	
164	240105Z	26.7N 127.7E	LMDR	- GOOD FIX, 10 DEG SPIRAL OVEMLAY												26.4N	127.8E	
165	240133Z	26.3N 127.0E	SAT	(12.5/2.5 /01.0/2+HMS)					NOAA-2									
166	240200Z	26.8N 127.4E	LMDR	- 6///												26.4N	129.5E	
167	240200Z	26.6N 127.7E	LMDR	- 25/02												26.1N	127.8E	
168	240300Z	26.5N 127.8E	LMDR	- 21672												26.1N	127.8E	
169	240317Z	26.4N 127.5E	SAT	(IM DATA					PCN 3	DMSF								
170	240317Z	26.6N 128.1E	SAT	(IM DATA					PCN 3	DMSF								
171	240317Z	26.4N 127.7E	SAT	(13.0/3.0 / / HMS)					PCN 3	DMSF								
172	240400Z	26.7N 128.1E	LMDR	- 6///												26.4N	129.5E	
173	240400Z	26.3N 128.2E	LMDR	- 5///2												26.1N	127.8E	
174	240500Z	26.3N 128.4E	LMDR	- 5///1												26.1N	127.8E	
175	240500Z	26.1N 128.6E	LMDR	- 10305												26.4N	129.5E	
176	240500Z	26.5N 128.5E	LMDR	- 15 DEG SPIRAL OVEMLAY												26.4N	127.8E	
177	240555Z	26.3N 128.7E	P 2	5 100 340 25 240 20 30 14 .25 980 291 10 13 CTNC											10			16
178	240700Z	26.0N 128.8E	LMDR	- 5///												26.1N	127.8E	
179	240710Z	26.3N 128.6E	LMDR	- GOOD FIX, HVT ATTN, 15 DEG SPIRAL OVEMLAY												26.4N	127.8E	
180	240745Z	26.3N 128.7E	LMDR	- FAIR FIX, 10 DEG SPIRAL OVEMLAY												26.4N	127.8E	
181	240800Z	26.2N 129.0E	LMDR	- POOR FIX												26.4N	127.8E	
182	240810Z	26.2N 129.2E	LMDR	- FAIR FIX, HVT ATTN												26.4N	127.8E	
183	240830Z	26.1N 129.2E	P 2	5 100 210 35 160 30 55 190 30 975 290 10 12 CTNC											15			16
184	240843Z	26.2N 129.3E	LMDR	- FAIR FIX, HVT ATTN, 10 DEG SPIRAL OVEMLAY												26.4N	127.8E	
185	240900Z	26.1N 129.4E	LMDR	- 52713												26.4N	129.5E	
186	240900Z	26.2N 129.3E	LMDR	- 5///												26.1N	127.8E	
187	240911Z	26.2N 129.3E	LMDR	- FAIR FIX, HVT ATTN, 15 DEG SPIRAL OVEMLAY												26.4N	127.8E	
188	240938Z	26.1N 129.4E	LMDR	- FAIR FIX, HVT ATTN, 20 DEG SPIRAL OVEMLAY												26.4N	127.8E	
189	240956Z	26.2N 129.8E	SAT	(IM DATA					PCN 4	DMSF								
190	240956Z	25.5N 128.6E	SAT	(IM DATA					PCN 6	DMSF								
191	241000Z	26.0N 129.6E	LMDR	- 6///												26.1N	127.8E	
192	241000Z	26.1N 129.3E	LMDR	- POOR FIX												26.4N	127.8E	
193	241008Z	26.0N 129.6E	LMDR	- FAIR FIX, HVT ATTN, 15 DEG SPIRAL OVEMLAY												26.4N	127.8E	
194	241042Z	26.0N 129.6E	LMDR	- FAIR FIX, HVT ATTN, 15 DEG SPIRAL OVEMLAY												26.4N	127.8E	
195	241108Z	26.1N 129.8E	LMDR	- 50713												26.4N	129.5E	
196	241110Z	25.8N 129.8E	LMDR	- FAIR FIX, HVT ATTN, 20 DEG SPIRAL OVEMLAY												26.4N	127.8E	
197	241138Z	25.9N 129.8E	SAT	(IM DATA					PCN 3	DMSF								
198	241200Z	25.9N 130.1E	LMDR	- 6///												26.1N	127.8E	
199	241208Z	26.0N 130.4E	SAT	(IM DATA					PCN 3	DMSF								
200	241208Z	26.3N 129.8E	SAT	(IM DATA					PCN 3	DMSF								
201	241210Z	25.9N 130.3E	LMDR	- FAIR FIX, HVT ATTN, F.B. BECOMING DIFFUSE AND BREAKING UP												26.4N	127.8E	
202	241236Z	25.9N 130.3E	LMDR	- POOR FIX, HVT ATTN, F.B. DIFFUSE, 15 DEG SPIRAL OVEMLAY												26.4N	127.8E	
203	241300Z	26.0N 130.3E	LMDR	- 6///												26.1N	127.8E	
204	241400Z	26.1N 130.5E	LMDR	- 6///												26.1N	127.8E	
205	241447Z	25.9N 130.6E	P 2	1 700 220 05 110 20 - - - 975 290 10 13 - - -												26.1N	127.8E	17
206	241500Z	26.1N 130.8E	LMDR	- 6///														
207	241559Z	25.6N 130.6E	SAT	(IM DATA					PCN 3	DMSF								
208	241559Z	26.1N 130.3E	SAT	(IM DATA					PCN 5	DMSF								
209	242000Z	26.3N 131.9E	LMDR	- 52763												26.4N	129.5E	
210	242058Z	26.4N 131.5E	SAT	(14.0/4.0 /01.0/2+HMS)					PCN 5	DMSF								
211	242141Z	26.6N 132.1E	P 1	1 700 300 75 200 22 60 240 10 964 281 19 15 CTNC											25			17
212	242308Z	26.3N 132.5E	SAT	(13.0/3.0 /00.5/2+HMS)					PCN 5	DMSF								
213	242308Z	26.1N 132.1E	SAT	(IM DATA					PCN 3	DMSF								
214	250034Z	26.4N 132.6E	SAT	(13.5/3.5 /5 /25HMS)					NOAA-2		(CONF 01)							
215	250259Z	27.4N 133.5E	SAT	(IM DATA					PCN 1	DMSF								
216	250259Z	27.1N 133.1E	SAT	(IM DATA					PCN 3	DMSF								
217	250941Z	28.8N 134.7E	SAT	(IM DATA					PCN 6	DMSF								
218	251025Z	29.4N 135.5E	P 5	5 700 280 00 220 60 60 180 110 972 287 19 - - - -											18			
219	251150Z	29.6N 135.6E	SAT	(IM DATA					PCN 4	DMSF								
220	251150Z	29.4N 135.1E	SAT	(IM DATA					PCN 5	DMSF								
221	251300Z	31.0N 136.4E	P 5	5 700 240 00 180 25 - - - 973 288 10 12 E I P SE-NW -											19			
222	251540Z	30.9N 135.6E	SAT	(IM DATA					PCN 5	DMSF								
223	252042Z	32.9N 137.1E	SAT	(13.0/4.0 /01.0/2+HMS)					PCN 5	DMSF								
224	252100Z	33.1N 137.2E	LMDR	- 359/2												35.3N	138.7E	
225	252200Z	33.8N 137.6E	LMDR	- 359/1												35.3N	138.7E	
226	252200Z	33.5N 137.2E	LMDR	- 359/1												35.8N	139.4E	
227	252210Z	33.8N 137.5E	LMDR	-														
228	252250Z	33.9N 137.3E	SAT	(12.0/3.0 /01.0/2+HMS)					PCN 5	DMSF								
229	252250Z	34.2N 137.0E	SAT	(IM DATA					PCN 5	DMSF								
230	252300Z	34.1N 137.4E	LMDR	- 52/1												35.3N	138.7E	
231	252300Z	33.9N 137.3E	LMDR	- 25931												35.7N	138.7E	
232	252331Z	34.0N 135.9E	SAT	(12.0/3.5 /01.5/2+HMS)					NOAA-2		(CONF 02)							
233	260020Z	34.5N 138.0E	LMDR	-												35.8N	139.4E	
234	260100Z	34.8N 137.6E	LMDR	- 24847												35.3N	138.7E	
235	260120Z	35.2N 138.2E	LMDR	-												35.8N	139.4E	
236	260200Z	35.5N 137.8E	LMDR	- 10971												35.4N	138.7E	
237	260230Z	35.8N 138.3E</																

TROPICAL DEPRESSION 16  
FIX POSITIONS FOR CYCLONE NO. 16  
0600Z 14 AUG TO 0600Z 15 AUG

FIX NO.	TIME	POSIT	FIX CAT	ACCRV NAV-MET	FIX LVL	MAX OBS				MAX OBS			OBS MIN SLP	MIN 700MB HGT	FLT LVL TI/TO	EYE FORM	ORIENT- IAT ION	EYE DIA	POSIT OF KAUAI	MSN NMHR
						DIR	VEL	BRG	RNG	SFC #	IND	VEL								
1	141244Z	16.2N 109.0E	SAT	(IR DATA																
2	150030Z	16.0N 107.8E	SAT	(12.5/2.5 / D1.5/24HRS)																
3	150030Z	16.9N 107.7E	SAT	(12.0/2.0 / / HRS)																
4	150423Z	16.6N 107.0E	SAT	(IR DATA																

TROPICAL STORM MADINE  
FIX POSITIONS FOR CYCLONE NO. 17  
0600Z 15 AUG TO 1700Z 18 AUG

FIX NO.	TIME	POSIT	FIX CAT	ACCRV NAV-MET	FIX LVL	MAX OBS				MAX OBS			OBS MIN SLP	MIN 700MB HGT	FLT LVL TI/TO	EYE FORM	ORIENT- IAT I ON	EYE DIA	POSIT OF KAUAI	MSN NMHR
						DIR	VEL	BRG	RNG	SFC #	IND	VEL								
1	150030Z	16.3N 127.1E	SAT	(12.0/2.0 / / HRS)																
2	150102Z	16.0N 126.8E	SAT	(11.5/1.5 / D0.5/24HRS)																
3	150241Z	16.3N 127.1E	SAT	(IR DATA																
4	151144Z	16.0N 131.0E	SAT	(IR DATA																
5	151430Z	15.6N 131.6E	P	10 20 700 350 35 270																
6	151523Z	15.3N 131.5E	SAT	(IR DATA																
7	151523Z	15.0N 131.6E	SAT	(IR DATA																
8	152134Z	15.5N 136.8E	SAT	(IR DATA																
9	152325Z	15.6N 135.5E	P	2 5 700 300 55 250																
10	160011Z	15.8N 135.6E	SAT	(13.0/3.0 / D1.0/24HRS)																
11	160011Z	15.0N 135.9E	SAT	(13.0/3.0 / / HRS)																
12	160234Z	16.0N 136.3E	SAT	(IR DATA																
13	160234Z	15.9N 136.5E	SAT	(13.0/3.0 / / HRS)																
14	160240Z	16.3N 136.5E	P	1 4 700 260 50 160																
15	160825Z	17.3N 138.7E	P	10 2 1500 220 45 130																
16	161018Z	17.6N 138.9E	SAT	(IR DATA																
17	161046Z	18.0N 139.0E	SAT	(IR DATA																
18	161111Z	17.7N 138.8E	SAT	(IR DATA																
19	161111Z	17.6N 138.6E	SAT	(IR DATA																
20	161436Z	18.6N 140.3E	P	10 5 700 220 40 140																
21	161504Z	18.8N 139.9E	SAT	(IR DATA																
22	161504Z	18.2N 139.1E	SAT	(IR DATA																
23	162211Z	20.9N 141.5E	SAT	(13.5/3.5 / D0.5/25HRS)																
24	162211Z	20.9N 141.2E	SAT	(11.5/2.5 / D1.5/24HRS)																
25	170204Z	22.3N 141.8E	SAT	(IR DATA																
26	170204Z	21.7N 141.3E	SAT	(IR DATA																
27	170325Z	22.3N 141.6E	P	5 5 700 180 50 90																
28	171002Z	23.8N 141.1E	SAT	(IR DATA																
29	171053Z	23.7N 141.3E	SAT	(IR DATA																
30	171053Z	23.9N 140.3E	SAT	(IR DATA																
31	171446Z	24.2N 141.0E	SAT	(IR DATA																
32	171446Z	24.2N 140.6E	SAT	(IR DATA																
33	172104Z	29.1N 140.6E	SAT	(IR DATA																
34	172153Z	29.3N 140.7E	SAT	(12.5/3.5 / D1.0/24HRS)																
35	172153Z	29.3N 140.7E	SAT	(12.5/2.5 / D1.0/24HRS)																
36	172355Z	29.9N 140.4E	SAT	(IR DATA																
37	172355Z	30.0N 139.8E	SAT	(IR DATA																
38	180146Z	30.6N 140.1E	SAT	(IR DATA																
39	180146Z	30.7N 140.5E	SAT	(IR DATA																
40	180520Z	30.8N 139.8E	P	5 5 500 200 20 250																
41	180947Z	32.2N 138.9E	SAT	(IR DATA																
42	181216Z	32.6N 138.4E	SAT	(IR DATA																
43	182316Z	32.2N 137.2E	SAT	(IR DATA																

TYPHOON POLLY  
FIX POSITIONS FOR CYCLONE NO. 19  
1200Z 25 AUG TO 0000Z 02 SEP

FIX NO.	TIME	POSIT	FIX CAT	ACCRV NAV-MET	FIX LVL	MAX OBS				MAX OBS			OBS MIN SLP	MIN 700MB HGT	FLT LVL TI/TO	EYE FORM	ORIENT- IAT I ON	EYE DIA	POSIT OF KAUAI	MSN NMHR
						DIR	VEL	BRG	RNG	SFC #	IND	VEL								
1	230013Z	21.2N 160.8E	SAT	(11.5/1.5 / / HRS)																
2	230830Z	19.6N 159.2E	SAT	(IR DATA																
3	231045Z	19.6N 159.1E	SAT	(IR DATA																
4	232113Z	19.7N 154.1E	SAT	(IR DATA																
5	232145Z	18.2N 154.2E	SAT	(11.5/1.5 / 5 / 24HRS)																
6	240136Z	19.2N 153.4E	SAT	(IR DATA																
7	240814Z	16.2N 157.0E	SAT	(IR DATA																
8	241027Z	16.1N 156.4E	SAT	(IR DATA																
9	241417Z	15.5N 150.2E	SAT	(IR DATA																
10	241417Z	16.5N 153.7E	SAT	(IR DATA																
11	242058Z	17.3N 150.9E	SAT	(12.0/2.0 / D0.5/24HRS)																
12	242308Z	17.4N 150.5E	SAT	(IR DATA																
13	250117Z	17.2N 150.0E	SAT	(IR DATA																
14	250117Z	16.7N 155.1E	SAT	(11.5/1.5 / / HRS)																
15	250330Z	16.9N 150.6E	P	5 10 1500 80 25 360																
16	250941Z	16.5N 144.3E	SAT	(IR DATA																
17	250941Z	17.1N 149.8E	SAT	(IR DATA																
18	251009Z	16.7N 144.2E	SAT	(IR DATA																
19	251120Z	15.5N 151.2E	SAT	(IR DATA																
20	251150Z	16.6N 148.7E	SAT	(IR DATA																
21	251358Z	16.1N 148.2E	SAT	(IR DATA																
22	252042Z	15.4N 146.9E	SAT	(12.5/2.5 / D0.5/24HRS)																
23	252250Z	15.2N 146.8E	SAT	(IR DATA																
24	252250Z	15.2N 146.8E	SAT	(12.0/2.0 / D0.5/24HRS)																
25	260012Z	15.7N 146.6E	P	3 3 700 210 30 240																
26	260240Z	15.3N 145.9E	SAT	(IR DATA																
27	260240Z	15.1N 140.3E	SAT	(IR DATA																
28	260330Z	15.2N 146.8E	P	2 10 700 230 30 120																
29	260511Z	15.4N 146.9E	P	2 10 700 230 30 120																
30	260830Z	15.4N 146.5E																		

TYPHOON POLLY  
FIX POSITIONS FOR CYCLONE NO. 19  
1200Z 25 AUG TO 0000Z 02 SEP

FIX NO.	TIME	POS (J)	FIX CAT	ACCHY NAV-MET	FIX LVL	MAX OBS FLT DIR	OBS LVL	WIND BRG	RNG	MAX OBS SFC WIND VEL	OBS WIND BRG	RNG	OBS SLP	MIN (100MB)	FLT LVL	EYE FORM	ORIENT-ATION	EYE DIA	MUSIT OF MAUAK	MSN NMMB		
																					PCN	UMSP
33	201132Z	15.0N 147.2E	SAT	(IR DATA																		
34	201132Z	15.7N 147.3E	SAT	(IR DATA																		
35	201140Z	15.0N 147.1E	SAT	(IR DATA																		
36	201100Z	15.0N 146.3E	P	5 5 700	320	32	240	40	-	-	-	991	299	12	-	-	-	-		3		
37	202007Z	16.0N 146.0E	SAT	(IR DATA																		
38	202006Z	16.0N 146.2E	P	1 2 700	320	40	240	30	3	290	30	989	299	12	11	-	-	-		4		
39	202232Z	16.0N 146.0E	SAT	(14.0/4.0 /01.5/24HMS)																		
40	202232Z	15.0N 146.2E	SAT	(14.0/4.0 /02.0/24HMS)																		
41	270015Z	16.2N 146.0E	P	-	700	-	00	-	-	60	-	-	-	296	-	-	-	-		4		
42	270222Z	16.7N 146.2E	SAT	(IR DATA																		
43	270222Z	16.4N 145.6E	SAT	(IR DATA																		
44	270242Z	16.5N 145.7E	P	1 2 700	280	50	200	30	45	310	30	981	296	14	12	EITP	SW-NE	18A10		5		
45	270840Z	16.8N 145.5E	P	1 2 700	170	75	120	50	65	120	60	977	290	16	12	CTMC		10		5		
46	270825Z	17.0N 145.4E	P	10 3 700	10	70	270	30	35	270	100	976	289	16	12	CTMC		12		5		
47	270910Z	17.0N 144.9E	SAT	(IR DATA																		
48	271113Z	17.7N 145.0E	SAT	(IR DATA																		
49	271113Z	18.1N 144.8E	SAT	(IR DATA																		
50	271503Z	18.2N 144.9E	SAT	(IR DATA																		
51	272100Z	18.5N 143.3E	AC H	-															19.0N 143.3E		-	
52	272159Z	19.0N 143.7E	P	2 2 700	260	60	180	39	3	180	90	964	279	14	13	CTRC		30		6		
53	272213Z	19.5N 143.9E	SAT	(15.0/5.0 /01.0/24HMS)																		
54	272213Z	19.7N 143.2E	SAT	(15.0/5.0 /01.0/24HMS)																		
55	272314Z	19.0N 143.0E	SAT	(15.0/5.0 /00.5/24HMS)																		
56	280203Z	20.4N 142.8E	SAT	(IR DATA																		
57	280311Z	20.3N 142.9E	P	5 2 700	190	80	90	40	100	90	20	959	275	17	13	CTMC		20		6		
58	281036Z	21.4N 142.1E	SAT	(IR DATA																		
59	281036Z	22.0N 142.7E	SAT	(IR DATA																		
60	281055Z	21.5N 142.0E	SAT	(IR DATA																		
61	281055Z	21.7N 141.8E	SAT	(IR DATA																		
62	281213Z	22.9N 142.0E	SAT	(IR DATA																		
63	281435Z	22.0N 141.5E	P	5 2 700	270	105	170	35	-	-	-	948	264	18	13	CTRC		20		7		
64	281444Z	22.0N 141.3E	SAT	(IR DATA																		
65	281402Z	21.6N 141.6E	SAT	(IR DATA																		
66	282125Z	21.2N 141.3E	SAT	(16.0/6.0 /01.0/24HMS)																		
67	282337Z	23.0N 141.3E	SAT	(15.5/5.5 /50.5/25HMS)																		
68	282337Z	23.8N 141.2E	SAT	(IR DATA																		
69	290145Z	23.9N 140.3E	SAT	(IR DATA																		
70	290537Z	25.0N 141.1E	P	2 2 700	280	80	150	50	100	150	50	950	266	17	11	CTRC		20		8		
71	290902Z	25.5N 141.3E	P	2 5 700	270	80	250	40	80	250	40	952	267	17	11	CTRC		20		8		
72	291021Z	25.4N 141.1E	SAT	(IR DATA																		
73	291021Z	25.0N 141.2E	SAT	(IR DATA																		
74	291144Z	26.0N 141.0E	SAT	(IR DATA																		
75	291218Z	26.0N 141.1E	SAT	(IR DATA																		
76	291218Z	26.1N 141.4E	SAT	(IR DATA																		
77	291426Z	26.4N 141.2E	SAT	(IR DATA																		
78	291655Z	27.0N 140.7E	P	3 3 700	260	85	180	45	-	-	-	954	269	15	12	CTRC		38		9		
79	291840Z	27.4N 140.6E	P	3 4 700	70	85	360	40	-	-	-	955	270	15	13	CTRC		40		9		
80	292122Z	28.2N 140.5E	SAT	(IR DATA																		
81	292318Z	28.3N 140.1E	SAT	(14.5/5.5 /01.0/24HMS)																		
82	292318Z	28.3N 140.2E	SAT	(16.5/6.5 /00.5/20HMS)																		
83	300126Z	28.4N 139.9E	SAT	(IR DATA																		
84	300400Z	29.1N 139.6E	P	5 5 700	330	65	270	30	70	360	15	960	274	14	13	CTMC		30		10		
85	300830Z	29.6N 139.3E	P	5 5 700	360	40	300	10	60	200	40	959	273	14	13	CTMC		30		10		
86	301200Z	30.1N 138.7E	SAT	(IR DATA																		
87	301548Z	30.3N 137.7E	P	5 5 700	340	70	240	25	-	-	-	954	271	17	14	CTMC		40		11		
88	302100Z	30.6N 137.2E	LHUM	- 277/3																35.4N 138.7E		
89	302100Z	30.6N 137.2E	P	5 3 700	40	75	310	30	60	310	17	956	271	15	14	EITP	SW-NE	45A30	35.4N 138.7E		11	
90	302300Z	30.7N 136.6E	LHUM	- 277/4																35.4N 138.7E		
91	302300Z	30.7N 136.6E	SAT	(13.5/4.5 /01.0/24HMS)																		
92	302300Z	30.6N 136.7E	SAT	(14.5/5.5 /02.0/24HMS)																		
93	302300Z	30.7N 137.0E	LHUM	- 277/4																35.4N 138.7E		
94	310900Z	31.7N 136.9E	LHUM	- 277/4																35.4N 138.7E		
95	310100Z	31.0N 136.7E	LHUM	- 277/3																35.4N 138.7E		
96	310200Z	30.8N 136.5E	LHUM	- 277/3																35.4N 138.7E		
97	310230Z	30.8N 136.3E	P	3 3 700	320	80	200	30	70	200	40	-	-	15	12	EITP	SW-NE	30A20			12	
98	310249Z	31.0N 136.9E	SAT	(IR DATA																		
99	310300Z	30.7N 136.2E	LHUM	- 277/3																33.3N 134.2E		
100	310300Z	30.7N 136.2E	LHUM	- 277/3																35.4N 138.7E		
101	310400Z	30.8N 136.0E	P	-	700	10	85	270	35	-	-	-	-	-	14	CTRC		20			14	
102	310400Z	30.9N 135.8E	LHUM	-																35.4N 139.4E		
103	310400Z	31.0N 136.1E	LHUM	- 277/3																35.4N 138.7E		
104	310400Z	30.8N 135.9E	LHUM	- 277/3																33.3N 134.2E		
105	310500Z	30.9N 135.7E	LHUM	- 277/3																35.4N 139.4E		
106	310500Z	30.6N 135.8E	LHUM	- 277/3																33.3N 134.2E		
107	310500Z	30.7N 135.8E	LHUM	- 277/3																35.4N 138.7E		
108	310600Z	30.7N 135.6E	LHUM	- 277/3																35.4N 138.7E		
109	310832Z	30.9N 135.3E	P	5 7 700	350	75	230	50	60	360	30	950	266	17	14	EITP	SE-NW	35A1A			13	
110	311000Z	30.8N 135.3E	LHUM	- 169/11																33.3N 134.2E		
111	311100Z	30.9N 135.2E	LHUM	- 119/11																33.3N 134.2E		
112	311142Z	30.8N 134.8E	SAT	(IR DATA																		
113	311142Z	30.8N 134.8E	SAT	(IR DATA																		
114	311400Z	30.9N 134.6E	LHUM	- 257/11																33.3N 134.2E		
115	311400Z	31.0N 134.5E	LHUM	- 077/11																30.6N 131.0E		
116	311500Z	31.0N 134.5E	LHUM	- 257/11																33.3N 134.2E		
117	311500Z	31.0N 134.4E	LHUM	- 277/11																30.6N 131.0E		
118	311530Z	30.9N 134.4E	SAT	(IR DATA																		
119	311600Z	31.0N 134.4E	LHUM	- 257/11																		

TYPHOON POLLY  
 FIX POSITIONS FOR CYCLONE NO. 19  
 1200Z 25 AUG TO 0000Z 02 SEP

FIX NO.	TIME	POSIT	FIX CAT	ACCRY NAV-MET	FIX LVL	MAX OBS			MAX OBS			OBS MIN SLP	MIN T/10	FLT LVL	EYE FORM	ORIENT- IATUW	EYE DIA	POSIT UP RADAR	MSN NMMH
						DIR	VEL	BKG RRG	VEL	DIR	RNG								
130	312100Z	31.3N 133.8E	LDR	-	25/12												33.3N 134.2E		
131	312200Z	31.2N 133.6E	LDR	-	07/12												30.6N 131.0E		
132	312300Z	31.4N 133.7E	LDR	-	25/12												33.3N 134.2E		
133	312422	31.6N 133.7E	SAT	(15.0/2.0 / 01.5/24HRS)				PCN 1	DMSF										
134	312422	31.7N 133.8E	SAT	(13.5/4.5 / 01.0/24HRS)				PCN 1	DMSF										
135	312300Z	31.5N 133.8E	LDR	-	GOOD FIX												33.6N 130.5E		
136	312300Z	31.3N 133.5E	LDR	-	07/12												30.6N 131.0E		
137	312300Z	31.5N 133.7E	LDR	-	10/12												33.3N 134.2E		
138	010000Z	31.5N 133.6E	LDR	-	07/12												30.6N 131.0E		
139	010000Z	31.6N 133.7E	LDR	-	GOOD FIX, 70 KM DIAM												33.6N 130.5E		
140	010100Z	31.7N 133.7E	LDR	-	GOOD FIX, 70 KM DIAM												33.6N 130.5E		
141	010100Z	31.6N 133.7E	LDR	-	62902												30.6N 131.0E		
142	010100Z	31.8N 133.5E	LDR	-	10912												33.3N 134.2E		
143	010200Z	31.9N 133.4E	LDR	-	10522												33.3N 134.2E		
144	010200Z	31.8N 133.6E	LDR	-	32912												30.6N 131.0E		
145	010200Z	31.8N 133.6E	LDR	-	GOOD FIX, 70 KM DIAM												33.6N 130.5E		
146	010230Z	32.2N 133.6E	SAT	(IR DATA )				PCN 1	DMSF										
147	010300Z	31.9N 133.5E	LDR	-	21912												30.6N 131.0E		
148	010300Z	31.9N 133.6E	LDR	-	GOOD FIX, 70 KM DIAM												33.6N 130.5E		
149	010400Z	32.1N 133.5E	LDR	-	21912												30.6N 131.0E		
150	010400Z	32.0N 133.5E	LDR	-	GOOD FIX, 70 KM DIAM												33.6N 130.5E		
151	010400Z	32.0N 133.3E	LDR	-	15772												33.3N 134.2E		
152	010500Z	32.3N 133.6E	LDR	-	20972												30.6N 131.0E		
153	010500Z	32.3N 133.5E	LDR	-	GOOD FIX, 70 KM DIAM												33.6N 130.5E		
154	010600Z	32.4N 133.6E	LDR	-	55942												30.6N 131.0E		
155	010600Z	32.3N 133.2E	LDR	-	65774												34.3N 132.6E		
156	010700Z	32.6N 133.5E	LDR	-	GOOD FIX, 80 KM DIAM												33.6N 130.5E		
157	010700Z	32.6N 133.6E	LDR	-	31912												30.6N 131.0E		
158	010700Z	32.7N 133.4E	LDR	-	17772												33.3N 134.2E		
159	010700Z	32.6N 133.2E	LDR	-	17772												34.3N 132.6E		
160	010800Z	33.0N 133.3E	LDR	-	65774												33.3N 134.2E		
161	010800Z	33.0N 133.4E	LDR	-	GOOD FIX, 80 KM DIAM												33.6N 130.5E		
162	010800Z	33.0N 133.4E	LDR	-	31911												30.6N 131.0E		
163	010900Z	33.3N 133.3E	LDR	-	20773												35.5N 133.1E		
164	010900Z	33.2N 133.3E	LDR	-	17772												33.3N 134.2E		
165	010900Z	33.2N 133.4E	LDR	-	GOOD FIX, 60 KM DIAM												33.6N 130.5E		
166	011000Z	33.6N 133.0E	LDR	-	GOOD FIX, 30 KM DIAM												33.3N 134.2E		
167	011000Z	33.4N 133.2E	LDR	-	27772												34.3N 132.6E		
168	011000Z	33.4N 133.1E	LDR	-	65773												35.5N 133.1E		
169	011020Z	33.4N 133.3E	LDR	-	20773												33.6N 130.5E		
170	011100Z	33.8N 133.1E	LDR	-	20773												35.5N 133.1E		
171	011124Z	33.7N 132.9E	SAT	(IR DATA )				PCN 5	DMSF										
172	011124Z	33.8N 133.3E	SAT	(IR DATA )				PCN 5	DMSF										
173	011125Z	33.7N 133.1E	LDR	-	POOR FIX												33.6N 130.5E		
174	011200Z	34.3N 133.2E	LDR	-	20202												35.5N 133.1E		
175	011200Z	34.2N 133.0E	LDR	-	POOR FIX												33.6N 130.5E		
176	011300Z	34.5N 132.8E	LDR	-	20312												35.5N 133.1E		
177	011300Z	34.5N 132.8E	LDR	-	65772												34.3N 132.6E		
178	011300Z	34.6N 132.8E	LDR	-	POOR FIX												33.6N 130.5E		
179	011305Z	34.2N 132.7E	SAT	(IR DATA )				PCN 5	DMSF										
180	011345Z	34.7N 132.6E	LDR	-	POOR FIX, 20 KM DIAM												34.7N 134.9E		
181	011400Z	34.7N 132.6E	LDR	-	20342												35.5N 133.1E		
182	011400Z	34.7N 132.6E	LDR	-	POOR FIX												33.6N 130.5E		
183	011400Z	35.0N 132.6E	LDR	-	65771												34.3N 132.6E		
184	011445Z	34.9N 132.5E	LDR	-	POOR FIX, 15 KM DIAM												34.7N 134.9E		
185	011500Z	35.3N 132.6E	LDR	-	20312												35.5N 133.1E		
186	011500Z	35.5N 132.6E	LDR	-	21632												34.3N 132.6E		
187	011500Z	35.2N 132.5E	LDR	-	POOR FIX												33.6N 130.5E		
188	011511Z	35.2N 132.3E	SAT	(IR DATA )				PCN 5	DMSF										
189	011545Z	35.2N 132.4E	LDR	-	POOR FIX, 15 KM DIAM												34.7N 134.9E		
190	011600Z	35.7N 132.5E	LDR	-	20152												33.6N 130.5E		
191	011600Z	36.0N 132.4E	LDR	-	21632												34.3N 132.6E		
192	011600Z	35.4N 132.3E	LDR	-	POOR FIX												33.6N 130.5E		
193	011645Z	35.6N 132.2E	LDR	-	POOR FIX, 15 KM DIAM												34.7N 134.9E		
194	011700Z	35.9N 132.3E	LDR	-	20172												35.5N 133.1E		
195	011700Z	36.2N 132.2E	LDR	-	POOR FIX												33.6N 130.5E		
196	012000Z	36.3N 131.6E	LDR	-													35.5N 133.1E		
197	01224Z	37.5N 132.4E	SAT	(15.0/4.0 / 02.0/24HRS)				PCN 3	DMSF										
198	01224Z	37.6N 132.5E	SAT	(12.0/4.0 / 01.5/24HRS)				PCN 3	DMSF										
199	020000Z	37.6N 132.7E	SAT	(IR DATA )				PCN 3	DMSF										
200	020010Z	37.1N 132.0E	SAT	(13.0/4.5 / 01.5/24HRS)				NOAA-2								(CONF 02)			
201	021247Z	41.0N 132.7E	SAT	(IR DATA )				PCN 5	DMSF										

TROPICAL DEPRESSION 20  
 FIX POSITIONS FOR CYCLONE NO. 20  
 0000Z 27 AUG TO 0600Z 28 AUG

FIX NO.	TIME	POSIT	FIX CAT	ACCRY NAV-MET	FIX LVL	MAX OBS			MAX OBS			OBS MIN SLP	MIN T/10	FLT LVL	EYE FORM	ORIENT- IATUW	EYE DIA	POSIT UP RADAR	MSN NMMH
						DIR	VEL	BKG RRG	VEL	DIR	RNG								
1	252224Z	22.7N 127.4E	SAT	(11.0/1.0 / / HRS)				PCN 5	DMSF										
2	260240Z	23.2N 126.5E	SAT	(IR DATA )				PCN 5	DMSF										
3	261107Z	24.6N 128.2E	SAT	(IR DATA )				PCN 6	DMSF										
4	270013Z	24.7N 131.3E	SAT	(12.0/2.0 / 01.0/24HRS)				PCN 3	DMSF										
5	270222Z	24.9N 131.6E	SAT	(IR DATA )				PCN 3	DMSF										
6	270222Z	25.2N 131.5E	SAT	(12.0/2.0 / / HRS)				PCN 4	DMSF										
7	271051Z	25.0N 131.6E	SAT	(IR DATA )				PCN 5	DMSF										
8	271052Z	25.0N 131.8E	SAT	(IR DATA )				PCN 6	DMSF										
9	271255Z	26.0N 131.0E	SAT	(IR DATA )				PCN 3	DMSF										
10	271255Z	26.2N 130.9E	SAT	(IR DATA )				PCN 6	DMSF										
11	271503Z	26.2N 130.8E	SAT	(IR DATA )				PCN 5	DMSF										
12	272153Z	26.5N 129.7E	SAT	(11.5/2.0 / 00.5/24HRS)				PCN 3	DMSF										
13	272355Z	27.0N 129.5E	SAT	(IR DATA )				PCN 3	DMSF										
14	272355Z	27.2N 129.7E	SAT	(11.0/2.0 / 01.0/24HRS)				PCN 5	DMSF										
15	280243Z	27.4N 128.9E	SAT	(IR DATA )				PCN 3	DMSF										
16	280430Z	27.1N 128.7E	P	2 8 1500 80 20 90 25 20 110				30	994	-	25	24	-	-	-	-	-	1	
17	281237Z	24.8N 126.9E	SAT	(IR DATA )				PCN 3	DMSF										

TROPICAL STORM ROSE  
FIX POSITIONS FOR CYCLONE NO. 21  
0600Z 28 AUG TO 0600Z 31 AUG

FIX NO.	TIME	POS	FIX CAT	ACQRY NAV-MET	FIX LVL	MAX OBS FLT LVL WIND			MAX OBS SFC WIND			OBS MIN SLP	MIN 700MB HGT	FLT LVL TI/TO	EYE FORM	ORIENT- TATION	EYE DIA	POSIT OF HADAR		MSN NMBR
						DIR	VEL	BKG RRG	VEL	BKG RRG	MIN							700MB	MIN	
1	272153Z	22.5N 122.5E	SAT	(11.0/1.0 /																
2	272355Z	23.0N 122.5E	SAT	(1K DATA																
3	272355Z	23.0N 122.1E	SAT	(12.0/2.0 /																
4	280100Z	23.0N 123.9E	LHDM	- 077Z														24.8N	125.3E	
5	280125Z	23.0N 123.1E	SAT	(12.0/2.0 /01.0/24HRS)																
6	280300Z	22.7N 124.0E	LHDM	- 077Z															24.3N	124.2E
7	280300Z	23.0N 124.1E	LHDM	- 077Z															24.8N	125.3E
8	280400Z	22.9N 124.4E	LHDM	- 077Z															24.8N	125.3E
9	280400Z	22.7N 124.2E	LHDM	- 077Z															24.3N	124.2E
10	280500Z	22.8N 124.8E	LHDM	- 077Z															24.8N	125.3E
11	280625Z	23.0N 124.9E	P	2 2 700	110	30	350	35	3	3.0	40	986	298	13	11	ELIP	SW-NE	15X10		1
12	280800Z	22.8N 125.5E	LHDM	- 077Z															24.8N	125.3E
13	280925Z	23.1N 125.7E	P	2 3 700	290	50	200	40	40	50	25	987	298	16	12	ELIP	SW-NE	15X10		1
14	281000Z	23.2N 125.9E	LHDM	- 077Z															24.8N	125.3E
15	281000Z	23.1N 125.9E	LHDM	- 077Z															24.3N	124.2E
16	281036Z	23.1N 125.0E	SAT	(1K DATA																
17	281036Z	23.3N 125.8E	SAT	(1K DATA																
18	281100Z	23.3N 125.9E	LHDM	- 077Z															24.3N	124.2E
19	281100Z	23.2N 126.2E	LHDM	- 077Z															24.8N	125.3E
20	281200Z	23.4N 126.3E	LHDM	- 077Z															24.8N	125.3E
21	281200Z	23.3N 126.2E	LHDM	- 077Z															24.3N	124.2E
22	281213Z	24.0N 126.0E	SAT	(1K DATA																
23	281237Z	23.2N 126.5E	SAT	(1K DATA																
24	281237Z	23.1N 126.7E	SAT	(1K DATA																
25	281300Z	23.5N 126.4E	LHDM	- 077Z																
26	281300Z	23.4N 126.5E	LHDM	- 077Z															24.3N	124.2E
27	281400Z	23.6N 126.5E	LHDM	- 077Z															24.8N	125.3E
28	281400Z	23.4N 126.7E	LHDM	- 077Z															24.3N	124.2E
29	281500Z	23.6N 126.8E	LHDM	- 077Z															24.8N	125.3E
30	281500Z	23.9N 126.8E	P	5 30 700	190	45	120	30	-	-	-	987	298	14	13	CTHC				2
31	281600Z	23.7N 127.0E	LHDM	- 077Z															24.8N	125.3E
32	281700Z	23.7N 127.1E	LHDM	- 077Z															24.8N	125.3E
33	281800Z	23.9N 127.3E	LHDM	- 077Z															24.8N	125.3E
34	281900Z	23.9N 127.4E	LHDM	- 077Z															24.8N	125.3E
35	281900Z	24.0N 127.6E	LHDM	- 077Z															24.8N	125.3E
36	282130Z	24.5N 127.7E	P	10 10 700	270	30	180	40	40	100	30	989	298	14	13	CTHC				2
37	282138Z	24.3N 127.4E	SAT	(1K DATA																
38	282337Z	24.3N 127.5E	SAT	(1.0/1.0 /S																
39	282377Z	24.4N 128.1E	SAT	(1.5/2.0 /W0.5/24HRS)																
40	290000Z	24.5N 128.2E	LHDM	- 077Z															26.1N	127.8E
41	290145Z	24.9N 128.2E	LHDM	- FAIR FIX, 20 DEG SPIRAL OVERLAY															26.4N	127.8E
42	290200Z	24.8N 128.3E	LHDM	- 077Z															26.1N	127.8E
43	290210Z	25.0N 128.2E	LHDM	- FAIR FIX, 10 DEG SPIRAL OVERLAY															26.4N	127.8E
44	290310Z	25.4N 128.2E	LHDM	- FAIR FIX, 10 DEG SPIRAL OVERLAY															26.4N	127.8E
45	290340Z	25.0N 128.4E	LHDM	- FAIR FIX, 10 DEG SPIRAL OVERLAY															26.4N	127.8E
46	290400Z	25.0N 128.2E	LHDM	- FAIR FIX, 10 DEG SPIRAL OVERLAY															26.4N	127.8E
47	290442Z	25.5N 128.4E	LHDM	- FAIR FIX, 10 DEG SPIRAL OVERLAY															26.4N	127.8E
48	290500Z	25.2N 128.6E	LHDM	- 077Z															26.1N	127.8E
49	290510Z	25.8N 128.3E	LHDM	- FAIR FIX, 10 DEG SPIRAL OVERLAY															26.4N	127.8E
50	290540Z	25.2N 128.5E	P	2 5 700	230	45	130	30	50	130	30	986	299	16	14	-	-	-		3
51	290542Z	25.8N 128.3E	LHDM	- FAIR FIX, 10 DEG SPIRAL OVERLAY															26.4N	127.8E
52	290545Z	25.3N 128.9E	LHDM	- POOR FIX															26.4N	127.8E
53	290700Z	25.5N 128.7E	LHDM	- 077Z															26.1N	127.8E
54	290710Z	25.5N 128.7E	LHDM	- FAIR FIX															26.4N	127.8E
55	290745Z	25.8N 128.8E	LHDM	- FAIR FIX, 15 DEG SPIRAL OVERLAY															26.4N	127.8E
56	290800Z	25.7N 128.8E	LHDM	- 077Z															26.1N	127.8E
57	290810Z	25.7N 128.3E	LHDM	- FAIR FIX, 15 DEG SPIRAL OVERLAY															26.4N	127.8E
58	290840Z	25.7N 128.9E	LHDM	- POOR FIX															26.2N	127.8E
59	290844Z	25.8N 128.9E	LHDM	- FAIR FIX, 15 DEG SPIRAL OVERLAY															26.4N	127.8E
60	290900Z	25.7N 128.8E	LHDM	- 077Z															26.1N	127.8E
61	290900Z	25.7N 129.0E	LHDM	- POOR FIX															26.2N	127.8E
62	290910Z	25.8N 129.0E	LHDM	- FAIR FIX, 15 DEG SPIRAL OVERLAY															26.4N	127.8E
63	290911Z	25.6N 128.8E	P	2 5 700	240	50	120	25	50	1.0	25	985	298	16	16	-	-	-		3
64	290940Z	25.8N 129.1E	LHDM	- FAIR FIX, HVT ATTN, 15 DEG SPIRAL OVERLAY															26.4N	127.8E
65	291000Z	25.9N 128.8E	LHDM	- 077Z															26.1N	127.8E
66	291000Z	26.0N 128.9E	LHDM	- 077Z															26.4N	129.5E
67	291000Z	25.8N 129.0E	LHDM	- GOOD FIX, 15 DEG SPIRAL OVERLAY															26.2N	127.8E
68	291010Z	25.9N 129.0E	LHDM	- POOR FIX															26.4N	127.8E
69	291021Z	26.0N 128.8E	SAT	(1K DATA																
70	291021Z	26.4N 128.8E	SAT	(1K DATA																
71	291040Z	26.0N 128.8E	LHDM	- FAIR FIX, 15 DEG SPIRAL OVERLAY															26.4N	127.8E
72	291100Z	26.2N 129.0E	LHDM	- 077Z															26.4N	129.5E
73	291100Z	26.1N 128.9E	LHDM	- 077Z															26.1N	127.8E
74	291113Z	25.8N 128.8E	SAT	(1K DATA																
75	291140Z	26.3N 129.1E	LHDM	- FAIR FIX, 15 DEG SPIRAL OVERLAY															26.4N	127.8E
76	291200Z																			

TROPICAL STORM ROSE  
FIX POSITIONS FOR CYCLONE NO. 21  
0600Z 28 AUG TO 0600Z 31 AUG

FIX NO.	TIME	PUSIT	FIX CAT	ACCKY NAV-MET	FIX LVL	MAX OBS DIR VEL	MAX OBS WIND BKG RNG	MAX OBS SFC WIND VLL HGG RNG	OBS MIN SLP	MIN /UOMB	FLT LVL	EYE FORM	ORIENTIATION	EYE DIA	PUSIT OF NAUAR	MSN NMMH
101	291700Z	26.9N 128.7E	LKDH	- 5////											26.1N 127.8E	
102	291705Z	26.8N 128.8E	LKDH	- FAIR FIX, 10 DEG SPIRAL OVERLAY											26.4N 127.8E	
103	291730Z	26.8N 128.7E	LKDH	- POOR FIX											26.2N 127.7E	
104	291737Z	26.8N 128.8E	LKDH	- FAIR FIX, 15 DEG SPIRAL OVERLAY											26.4N 127.8E	
105	291800Z	26.9N 128.8E	LKDH	- 55////											28.0N 129.5E	
106	291805Z	26.8N 128.8E	LKDH	- FAIR FIX, 20 DEG SPIRAL OVERLAY											26.4N 127.8E	
107	291844Z	26.9N 128.8E	LKDH	- FAIR FIX, 20 DEG SPIRAL OVERLAY											26.4N 127.8E	
108	291900Z	27.0N 128.8E	LKDH	- 55////											28.4N 129.5E	
109	291900Z	27.0N 128.5E	LKDH	- 5////											26.1N 127.8E	
110	292000Z	27.1N 128.6E	LKDH	- 5////											26.1N 127.8E	
111	292110Z	26.9N 128.6E	LKDH	- FAIR FIX, 10 DEG SPIRAL OVERLAY											26.4N 127.8E	
112	292122Z	27.1N 128.6E	SAT	(1H DATA ) PCN 4 DMSP												
113	292139Z	27.0N 128.6E	LKDH	- POOR FIX, 10 DEG SPIRAL OVERLAY											26.4N 127.8E	
114	292141Z	27.0N 128.8E	LKDH	- FAIR FIX, 10 DEG SPIRAL OVERLAY											26.4N 127.8E	
115	292210Z	27.0N 128.6E	LKDH	- POOR FIX, 10 DEG SPIRAL OVERLAY											26.4N 127.8E	
116	292238Z	26.9N 128.6E	LKDH	- POOR FIX, 10 DEG SPIRAL OVERLAY											26.4N 127.8E	
117	292308Z	27.0N 128.8E	LKDH	- POOR FIX, 20 DEG SPIRAL OVERLAY											26.4N 127.8E	
118	292318Z	27.2N 128.5E	SAT	(12.0/2.0 /D1.0/2+HMS) PCN 5 DMSP												
119	292318Z	27.1N 128.5E	SAT	(12.0/2.0 /D0.5/2+HMS) PCN 5 DMSP												
120	292340Z	27.0N 128.9E	LKDH	- POOR FIX, 20 DEG SPIRAL OVERLAY											26.4N 127.8E	
121	300000Z	27.3N 128.4E	LKDH	- 57////											26.1N 127.8E	
122	300010Z	27.2N 128.5E	LKDH	- POOR FIX, 10 DEG SPIRAL OVERLAY											26.4N 127.8E	
123	300046Z	27.3N 128.6E	LKDH	- POOR FIX, 10 DEG SPIRAL OVERLAY											26.4N 127.8E	
124	300100Z	27.4N 128.2E	LKDH	- 65////											28.4N 129.5E	
125	300112Z	27.2N 128.5E	LKDH	- POOR FIX, 10 DEG SPIRAL OVERLAY											26.4N 127.8E	
126	300140Z	27.3N 128.6E	LKDH	- POOR FIX, 10 DEG SPIRAL OVERLAY											26.4N 127.8E	
127	300200Z	27.3N 128.9E	LKDH	- 6////											26.1N 127.8E	
128	300200Z	27.4N 128.5E	LKDH	- 65////											28.4N 129.5E	
129	300213Z	27.3N 128.9E	LKDH	- POOR FIX, 10 DEG SPIRAL OVERLAY											26.4N 127.8E	
130	300243Z	27.4N 128.8E	LKDH	- POOR FIX, 10 DEG SPIRAL OVERLAY											26.4N 127.8E	
131	300300Z	27.4N 128.4E	LKDH	- 65////											28.4N 129.5E	
132	300300Z	27.3N 128.9E	LKDH	- 57////											26.1N 127.8E	
133	300307Z	27.4N 128.8E	LKDH	- POOR FIX, EXTRAPOLATED, NO WELL DEFINED SPIRAL BANDS											26.4N 127.8E	
134	300308Z	27.1N 128.9E	SAT	(1H DATA ) PCN 5 DMSP												
135	300347Z	27.5N 128.9E	LKDH	- POOR FIX, 10 DEG SPIRAL OVERLAY, WALL CLOUD NOT VISIBLE											26.4N 127.8E	
136	300400Z	27.5N 128.8E	LKDH	- 67////											26.1N 127.8E	
137	300400Z	27.3N 128.8E	LKDH	- 65////											28.4N 129.5E	
138	300405Z	27.5N 128.9E	LKDH	- POOR FIX, 10 DEG SPIRAL OVERLAY, NO WALL CLOUD											26.4N 127.8E	
139	300426Z	27.2N 128.8E	P	1 2 700 310 52 220 45 40 40 20 986 299 15 12 CTWC 60												4
140	300440Z	27.5N 128.9E	LKDH	- POOR FIX, 10 DEG SPIRAL OVERLAY, NO WALL CLOUD											26.4N 127.8E	
141	300500Z	27.5N 128.8E	LKDH	- 67////											26.1N 127.8E	
142	300515Z	27.5N 128.9E	LKDH	- POOR FIX, 15 DEG SPIRAL OVERLAY											26.4N 127.8E	
143	300540Z	27.5N 129.0E	LKDH	- POOR FIX, 15 DEG SPIRAL OVERLAY											26.4N 127.8E	
144	300610Z	27.5N 129.0E	LKDH	- POOR FIX, 15 DEG SPIRAL OVERLAY, NO WELL DEFINED SPIRAL BANDS											26.4N 127.8E	
145	300637Z	27.5N 129.0E	LKDH	-											26.4N 127.8E	
146	300700Z	27.1N 129.1E	LKDH	- 67////											26.1N 127.8E	
147	300700Z	27.1N 129.0E	LKDH	- 65977											28.4N 129.5E	
148	300710Z	27.2N 129.1E	LKDH	- FAIR FIX, 15 DEG SPIRAL OVERLAY											26.4N 127.8E	
149	300740Z	27.2N 129.3E	LKDH	- FAIR FIX, 15 DEG SPIRAL OVERLAY											26.4N 127.8E	
150	300805Z	27.2N 129.3E	LKDH	- FAIR FIX											26.4N 127.8E	
151	300832Z	27.1N 129.4E	LKDH	- FAIR FIX, 15 DEG SPIRAL OVERLAY											26.4N 127.8E	
152	300900Z	27.0N 129.3E	LKDH	- 31912											28.4N 129.5E	
153	300900Z	26.9N 129.4E	LKDH	- 67////											26.1N 127.8E	
154	300908Z	27.1N 129.5E	LKDH	- 15 DEG SPIRAL OVERLAY											26.4N 127.8E	
155	300946Z	27.0N 129.5E	LKDH	- POOR FIX, 15 DEG SPIRAL OVERLAY											26.4N 127.8E	
156	301010Z	27.0N 129.2E	LKDH	- POOR FIX, 15 DEG SPIRAL OVERLAY											26.4N 127.8E	
157	301040Z	27.1N 129.3E	LKDH	- BY XMAP, NO SPIRAL BAND											26.4N 127.8E	
158	301200Z	26.6N 129.8E	SAT	(1H DATA ) PCN 3 DMSP												
159	301240Z	26.7N 129.3E	LKDH	- POOR FIX, 10 DEG SPIRAL OVERLAY, NO WALL CLOUD											26.4N 127.8E	
160	301300Z	26.5N 129.9E	LKDH	- 677/2											28.4N 129.5E	
161	301400Z	26.5N 130.3E	LKDH	- 677/2											26.1N 127.8E	
162	301544Z	26.7N 130.3E	SAT	(1H DATA ) PCN 3 DMSP												
163	301600Z	26.5N 130.3E	LKDH	- 6577/2											28.4N 129.5E	
164	301600Z	26.5N 130.3E	LKDH	- 6777/2											26.1N 127.8E	
165	301605Z	26.1N 130.4E	P	1 2 100 290 40 260 40 - - - 990 302 17 13 - - -												5
166	301700Z	26.5N 130.4E	LKDH	- 6577/2											28.4N 129.5E	
167	302228Z	25.8N 131.5E	P	2 2 700 290 50 220 50 30 110 30 990 303 17 13 - - -												5
168	302300Z	25.5N 131.6E	SAT	(12.5/2.5 /50.5/2+HMS) PCN 3 DMSP												
169	302300Z	25.4N 131.5E	SAT	(12.5/2.5 /D0.5/2+HMS) PCN 3 DMSP												
170	310249Z	25.4N 133.0E	SAT	(1H DATA ) PCN 3 DMSP												
171	311142Z	25.5N 137.1E	SAT	(1H DATA ) PCN 5 DMSP												
172	31130Z	25.6N 137.9E	SAT	(1H DATA ) PCN 3 DMSP												
173	312242Z	27.7N 139.6E	SAT	(1H DATA ) PCN 3 DMSP												
174	010230Z	29.5N 139.8E	SAT	(1H DATA ) PCN 3 DMSP												
175	011124Z	31.3N 140.5E	SAT	(1H DATA ) PCN 3 DMSP												
176	011511Z	32.7N 140.2E	SAT	(1H DATA ) PCN 3 DMSP												

TYPHOON SHIRLEY  
 FIX POSITIONS FOR CYCLONE NO. 22  
 0000Z 04 SEP TO 0000Z 09 SEP

FIX NO.	TIME	POSIT	FIX CAT	ACCHY NAV-MET	FIX LVL	MAX OBS				MAX OBS			OBS MIN SLP	MIN 700MB HGT	FLT T1/T0	EYE FORM	ORIE- IATION	EYE DIA	MUSIT OF RADAR	MSN NMBK
						DIR	VEL	BRG	RNG	VEL	BRG	RNG								
1	040011Z	23.9N 130.5E	SAT	(T2.0/2.0 /D1.0/24HRS)					NOAA-2			(CONF 01)								
2	041100Z	25.8N 131.9E	SAT	(IR DATA)					NOAA-2			(CONF 01)								
3	050107Z	26.0N 131.0E	SAT	(T3.0/3.0 /D1.0/24HRS)					NOAA-2			(CONF 01)								
4	051157Z	26.6N 131.1E	SAT	(IR DATA)					NOAA-2			(CONF 01)								
5	060005Z	26.2N 129.2E	SAT	(T3.5/3.5 /D0.5/24HRS)					NOAA-2			(CONF 01)								
6	061055Z	27.7N 128.8E	SAT	(IR DATA)					NOAA-2			(CONF 01)								
7	070059Z	28.2N 127.3E	SAT	(T3.0/3.0 /W0.5/24HRS)					NOAA-2			(CONF 01)								
8	071152Z	28.9N 128.0E	SAT	(IR DATA)					NOAA-2			(CONF 02)								
9	081052Z	32.3N 130.5E	SAT	(IR DATA)					NOAA-2			(CONF 02)								
10	021247Z	23.4N 128.1E	SAT	(IR DATA)					PCN 5 DMSP											
11	021247Z	23.2N 127.7E	SAT	(IR DATA)					PCN 5 DMSP											
12	022344Z	24.0N 128.6E	SAT	(T1.5/1.5 / / HRS)					PCN 5 DMSP											
13	022347Z	23.6N 129.0E	SAT	(T1.5/1.5 / / HRS)					PCN 5 DMSP											
14	030335Z	24.3N 129.0E	SAT	(IR DATA)					PCN 5 DMSP											
15	031229Z	24.0N 130.0E	SAT	(IR DATA)					PCN 5 DMSP											
16	031229Z	24.4N 129.4E	SAT	(IR DATA)					PCN 5 DMSP											
17	032326Z	24.2N 130.8E	SAT	(T2.0/2.0 /D0.5/24HRS)					PCN 5 DMSP											
18	032329Z	24.4N 130.7E	SAT	(T2.0/2.0 /D0.5/24HRS)					PCN 5 DMSP											
19	040316Z	24.9N 130.8E	SAT	(IR DATA)					PCN 5 DMSP											
20	041210Z	24.7N 131.4E	SAT	(IR DATA)					PCN 3 DMSP											
21	041210Z	25.3N 131.5E	SAT	(IR DATA)					PCN 6 DMSP											
22	041555Z	25.4N 131.3E	P	5 10 700 / - 50 50 15 - -					491	301	12	11	CTRC						1	
23	041557Z	25.4N 131.7E	SAT	(IR DATA)					PCN 3 DMSP											
24	041800Z	25.7N 131.6E	SAT	(IR DATA)					PCN 8 DMSP											
25	042100Z	25.7N 131.1E	P	5 10 700 270 50 170 40 3 190									12	11	CTMC				1	
26	042310Z	25.5N 131.3E	SAT	(T3.0/3.0 /D1.0/24HRS)					PCN 3 DMSP											
27	042310Z	26.0N 131.5E	SAT	(T2.5/2.5 /D0.5/24HRS)					PCN 3 DMSP											
28	050200Z	26.1N 131.2E	LNDR	- 65/12														28.4N 129.5E		
29	050258Z	25.7N 131.0E	SAT	(IR DATA)					PCN 3 DMSP											
30	050300Z	26.1N 131.6E	LNDR	- 65/13														28.4N 129.5E		
31	050400Z	26.2N 131.4E	LNDR	- 65/13														28.4N 129.5E		
32	050700Z	26.3N 131.3E	LNDR	- 20972														28.4N 129.5E		
33	050800Z	26.4N 131.2E	LNDR	- 21912														28.4N 129.5E		
34	050830Z	26.7N 131.2E	P	4 7 700 170 60 140 60 75 140 50					980	293	15	11	EITP	N-S	40A25				3	
35	050900Z	26.3N 131.2E	LNDR	- 21912														28.4N 129.5E		
36	051000Z	26.5N 131.2E	LNDR	- 21912														28.4N 129.5E		
37	051100Z	26.4N 131.0E	LNDR	- 21912														28.4N 129.5E		
38	051152Z	26.4N 130.6E	SAT	(IR DATA)					PCN 1 DMSP											
39	051152Z	26.7N 130.5E	SAT	(IR DATA)					PCN 3 DMSP											
40	051200Z	26.3N 131.0E	LNDR	- 61/11														26.4N 127.8E		
41	051300Z	26.6N 130.9E	LNDR	- 21912														28.4N 129.5E		
42	051300Z	26.5N 131.0E	LNDR	- 61/11														28.4N 127.8E		
43	051400Z	26.5N 130.9E	LNDR	- 21912														28.4N 129.5E		
44	051400Z	26.5N 131.0E	LNDR	- 61/11														28.4N 129.5E		
45	051430Z	26.5N 130.6E	P	1 2 700 270 60 160 50 - - -					979	291	16	12	EITP	N-S	45X20				3	
46	051500Z	26.6N 130.8E	LNDR	- 22912														28.4N 129.5E		
47	051500Z	26.7N 130.9E	LNDR	- 61/11														26.4N 127.8E		
48	051539Z	26.7N 130.7E	SAT	(IR DATA)					PCN 1 DMSP											
49	051600Z	26.7N 130.6E	LNDR	- 21913														28.4N 129.5E		
50	051600Z	26.7N 130.6E	LNDR	- 51/11														26.4N 127.8E		
51	051633Z	26.5N 130.5E	LNDR	- POOR FIX, 10 DEG SPIRAL OVERLAY														26.4N 127.8E		
52	051700Z	26.7N 130.5E	LNDR	- 10912														28.4N 129.5E		
53	051700Z	26.9N 130.6E	LNDR	- 61/11														26.2N 127.8E		
54	051800Z	26.7N 130.4E	LNDR	- 21913														28.4N 129.5E		
55	051800Z	26.9N 130.5E	LNDR	- 61/11														26.2N 127.8E		
56	051900Z	26.7N 130.3E	LNDR	- 21913														28.4N 129.5E		
57	051900Z	27.1N 130.2E	LNDR	- 61/11														26.2N 127.8E		
58	051900Z	26.9N 130.3E	LNDR	- GOOD FIX														26.2N 127.7E		
59	051910Z	26.4N 130.2E	LNDR	- 30 PERCENT WALL CLOUD														26.4N 127.8E		
60	052000Z	26.8N 130.2E	LNDR	- 21913														28.4N 129.5E		
61	052000Z	27.1N 130.2E	LNDR	- 61/11														26.2N 127.8E		
62	052005Z	26.9N 130.2E	LNDR	- FAIR FIX, 20 DEG SPIRAL OVERLAY, NO VISIBLE WALL CLOUD														26.4N 127.8E		
63	052040Z	26.9N 130.0E	LNDR	- 20 DEG SPIRAL OVERLAY, 20 PERCENT WALL CLOUD														26.4N 127.8E		
64	052100Z	26.8N 130.1E	LNDR	- 21912														28.4N 129.5E		
65	052100Z	27.1N 130.2E	LNDR	- 61/11														26.2N 127.8E		
66	052105Z	26.8N 130.2E	LNDR	- 20 DEG SPIRAL OVERLAY, 15 PERCENT WALL CLOUD														26.4N 127.8E		
67	052200Z	26.8N 130.0E	LNDR	- 21912														28.4N 129.5E		
68	052200Z	26.9N 129.9E	LNDR	- 61/11														26.2N 127.8E		
69	052205Z	26.7N 129.8E	LNDR	- FAIR FIX, ELLIPTICAL EYE, 20 DEG SPIRAL OVERLAY, 60 PERCENT WALL CLOUD														26.4N 127.8E		
70	052240Z	26.8N 129.8E	LNDR	- FAIR FIX, ELLIPTICAL EYE, 70 DEG SPIRAL OVERLAY, 60 PERCENT WALL CLOUD														26.4N 127.8E		
71	052252Z	26.9N 129.7E	SAT	(T3.5/3.5 /D0.5/24HRS)					PCN 1 DMSP											
72	052252Z	26.8N 129.7E	SAT	(T3.0/3.0 /D0.5/24HRS)					PCN 3 DMSP											
73	052300Z	26.8N 129.9E	LNDR	- 22912														28.4N 129.5E		
74	052300Z	26.8N 129.8E	LNDR	- 22903														26.4N 127.8E		
75	052310Z	26.7N 129.8E	LNDR	- GOOD FIX, ELLIPTICAL EYE, 20 DEG SPIRAL OVERLAY, 75 PERCENT WALL CLOUD														26.4N 127.8E		
76	052340Z	26.8N 129.8E	LNDR	- GOOD FIX, EYE 29 NM DIAM, 20 DEG SPIRAL OVERLAY, 60 PERCENT WALL CLOUD														26.4N 127.8E		
77	060000Z	26.9N 129.7E	LNDR	- 22933														28.4N 129.5E		
78	060000Z	26.8N 129.7E	LNDR	- 32942														26.4N 127.8E		
79	060010Z	26.7N 129.7E	LNDR	- GOOD FIX, CIRCULAR EYE 28 NM DIAM, 60 PERCENT WALL CLOUD														26.4N 127.8E		
80	060030Z	27.0N 129.6E	LNDR	- CIRCULAR EYE 30 NM DIAM, 20 DEG SPIRAL OVERLAY, 50 PERCENT WALL CLOUD														26.4N 127.8E		
81	060040Z	26.8N 129.7E	LNDR	- 32944														26.4N 127.8E		
82	060100Z	26.9N 129.5E	LNDR	- 22973														28.4N 129.5E		
83	060100Z	26.9N 129.5E	LNDR	- 32944														28.4N 127.8E		
84	060110Z	26.8N 129.6E	LNDR	- CIRCULAR EYE 29 NM DIAM, 20 DEG SPIRAL OVERLAY, 40 PERCENT WALL CLOUD														26.4N 127.8E		
85	060130Z	27.1N 129.4E	LNDR	- 32944														26.4N 127.8E		
86	060140Z	26.7N 129.6E	LNDR	- CIRCULAR EYE 31 NM DIAM, 20 DEG SPIRAL OVERLAY, 59 PERCENT WALL CLOUD														26.4N 127.8E		
87	060200Z	27.0N 129.4E	LNDR	- 21913														28.4N 129.5E		
88	060200Z	27.0N 129.4E	LNDR	- 52944														26.4N 127.8E		
89	060208Z	27.0N 129.5E	LNDR	- GOOD FIX, CIRCULAR EYE 35 NM DIAM, 60 PERCENT WALL CLOUD														26.4N 127.8E		
90	060230Z	27.3N 129.2E	LNDR																	



TYPHOON SHIRLEY  
 FIX POSITIONS FOR CYCLONE NO. 22  
 0000Z 04 SEP TO 0000Z 09 SEP

FIX NO.	TIME	POS [L]	FIX CAT	ACQY NAV-MET	FIX LVL	MAX OBS				MAX OBS				OBS MIN SLP	MIN /UOMB MGT	FLT LVL	EYE FORM	ORIENTATION	EYE DIA	POSIT OF RADAR	MSN NMbK	
						DIR	VEL	BKG	RNG	SFC WIND	VEL	BKG	RNG									
201	070510Z	28.4N 127.8E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					28.4N 127.8E		
202	070530Z	28.5N 127.8E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					28.4N 127.7E		
203	070540Z	28.5N 127.8E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					28.4N 127.8E		
204	070600Z	28.7N 127.7E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					28.4N 127.8E		
205	070650Z	28.7N 127.8E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					28.4N 127.8E		
206	070700Z	28.5N 127.6E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					28.4N 127.8E		
207	070700Z	28.7N 127.6E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					28.4N 127.8E		
208	070750Z	28.8N 127.6E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					28.4N 127.8E		
209	070800Z	28.6N 127.6E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					28.4N 127.8E		
210	070850Z	28.6N 127.6E	P	1	3	100	130	70	40	30	90	40	35	972	285	10	12	CTRC		40		
211	070900Z	28.7N 127.6E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					28.4N 129.5E	6	
212	071000Z	28.8N 127.6E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					28.4N 129.5E		
213	071200Z	28.9N 127.6E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					28.4N 129.5E		
214	071257Z	28.3N 127.9E	SAT	(1M DATA	)	PCN 3	DMSF													28.4N 129.5E		
215	071300Z	28.9N 127.5E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					28.4N 129.5E		
216	071400Z	28.9N 127.4E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					28.4N 129.5E		
217	071450Z	28.9N 127.5E	P	1	5	100	140	60	60	30	-	-	-	974	288	19	11	-	-	-	6	
218	071500Z	28.9N 127.5E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					28.4N 129.5E		
219	071500Z	28.7N 127.9E	SAT	(1M DATA	)	PCN 5	DMSF													28.4N 129.5E		
220	071600Z	28.9N 127.6E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					28.4N 129.5E		
221	071900Z	28.2N 127.8E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					28.4N 129.5E		
222	072000Z	28.3N 127.8E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					28.4N 129.5E		
223	072100Z	28.5N 128.1E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					28.4N 129.5E		
224	072200Z	28.5N 128.2E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					28.4N 129.5E		
225	072215Z	28.4N 127.7E	P	10	3	100	140	80	50	20	80	340	10	983	299	21	-	CTRC		12	7	
226	072300Z	28.7N 128.2E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					28.4N 129.5E		
227	072357Z	28.7N 128.6E	SAT	(1M DATA	)	PCN 3	DMSF													28.4N 129.5E		
228	072357Z	30.1N 128.4E	SAT	(14.0/4.0-/S1.0/24HRS)	)	PCN 3	DMSF															
229	080000Z	28.9N 128.8E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					30.0N 131.0E		
230	080030Z	28.6N 127.6E	P	-	100	240	70	170	20	70	170	20	-	-	21	18	-	-	-	-	7	
231	080100Z	30.0N 128.5E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					30.0N 131.0E		
232	080100Z	30.0N 128.5E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					28.4N 129.5E		
233	080200Z	30.2N 128.6E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					30.0N 131.0E		
234	080200Z	30.1N 128.5E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					28.4N 129.5E		
235	080200Z	30.5N 128.8E	SAT	(13.0/4.0-/W1.0/24HRS)	)	PCN 5	DMSF															
236	080400Z	28.8N 127.5E	P	3	700	260	55	180	20	75	300	10	983	297	21	18	CTRC		10		7	
237	080300Z	30.4N 128.6E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					33.4N 130.4E		
238	080300Z	30.4N 128.6E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					30.0N 131.0E		
239	080300Z	30.4N 128.6E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					28.4N 129.5E		
240	080400Z	30.5N 128.7E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					33.4N 130.4E		
241	080400Z	30.5N 128.8E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					30.0N 131.0E		
242	080400Z	30.6N 128.8E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					28.4N 129.5E		
243	080500Z	30.6N 128.8E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					33.4N 128.8E		
244	080500Z	30.6N 128.9E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					30.0N 131.0E		
245	080500Z	30.7N 128.9E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					28.4N 129.5E		
246	080600Z	30.8N 129.0E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					33.4N 130.4E		
247	080600Z	30.7N 129.1E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					30.0N 131.0E		
248	080600Z	30.7N 128.9E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					28.4N 129.5E		
249	080700Z	31.0N 129.3E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					33.4N 130.4E		
250	080700Z	30.7N 129.4E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					30.0N 131.0E		
251	080700Z	31.1N 129.3E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					28.4N 129.5E		
252	080800Z	31.0N 129.6E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					30.0N 130.4E		
253	080800Z	30.9N 129.6E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					30.0N 131.0E		
254	080800Z	30.9N 129.4E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					28.4N 129.5E		
255	080900Z	31.1N 129.7E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					33.4N 130.4E		
256	080900Z	31.0N 129.7E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					30.0N 131.0E		
257	080900Z	31.1N 129.6E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					28.4N 129.5E		
258	081000Z	31.1N 129.9E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					33.4N 130.4E		
259	081000Z	31.2N 130.0E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					30.0N 131.0E		
260	081000Z	31.3N 129.9E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					28.4N 129.5E		
261	081000Z	31.3N 129.9E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					33.4N 130.4E		
262	081100Z	31.3N 130.1E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					30.0N 131.0E		
263	081100Z	31.3N 130.1E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					28.4N 129.5E		
264	081100Z	31.3N 130.3E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					33.4N 130.4E		
265	081200Z	31.5N 130.4E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					30.0N 131.0E		
266	081200Z	31.4N 130.4E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					28.4N 129.5E		
267	081200Z	31.5N 130.4E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					33.4N 130.4E		
268	081200Z	31.4N 130.4E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					30.0N 131.0E		
269	081239Z	31.6N 130.6E	SAT	(1M DATA	)	PCN 3	DMSF													28.4N 129.5E		
270	081300Z	31.7N 130.7E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					33.4N 130.4E		
271	081300Z	31.8N 130.6E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					30.0N 131.0E		
272	081300Z	31.6N 130.5E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					33.4N 130.4E		
273	081400Z	31.9N 130.8E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	30	PERCENT	WALL	CLOUD	OPEN	N					30.0N 131.0E		
274	081400Z	32.0N 130.8E	LKDH	-	PAIR FIX	10	DEG	SPIRAL	OVERLAY	3												

TROPICAL STORM TRIX  
FIX POSITIONS FOR CYCLONE NO. 23  
1200Z 05 SEP TO 1200Z 06 SEP

FIX NO.	TIME	POSIT	FIX CAT	ACCHY NAV-MET	FIX LVL	MAX OBS			MAX OBS			OBS MIN SLP	MIN 700MB MGT	FLT LVL TI/TO	EYE FORM	ORIENT- IAT IUN	EYE DIA	POSIT OF MAUAR	MSN NMRH
						DIR	VEL	BRG	RNG	VEL	BRG								
1	050052Z	20.1N 115.9E	SAT	(13.0/3.0 /						PCN 3	DMSP								
2	050900Z	20.6N 115.1E	LHDR	-													22.3N	114.2E	-
3	051200Z	20.6N 114.7E	LHDR	-													22.3N	114.2E	-
4	051334Z	20.0N 115.5E	SAT	(IR DATA						PCN 5	DMSP								
5	051422Z	20.0N 115.0E	SAT	(IR DATA						NOAA-2									
6	051500Z	20.7N 114.1E	LHDR	-													22.3N	114.2E	-
7	051800Z	20.7N 113.5E	LHDR	-													22.3N	114.2E	-
8	052100Z	20.8N 113.3E	LHDR	-													22.3N	114.2E	-
9	060000Z	20.9N 113.1E	LHDR	-													22.3N	114.2E	-
10	060034Z	20.5N 112.8E	SAT	(13.0/3.0-/S						PCN 5	DMSP								
11	060202Z	21.4N 112.4E	SAT	(13.0/3.0-/D1.0/24HRS)						NOAA-2									
12	060310Z	21.4N 112.4E	LHDR	-															
13	060600Z	21.7N 112.1E	LHDR	-													22.3N	114.2E	-
14	060900Z	21.9N 111.4E	LHDR	-													22.3N	114.2E	-
15	061315Z	22.3N 109.9E	SAT	(IR DATA						PCN 5	DMSP								
16	061315Z	22.5N 110.8E	SAT	(IR DATA						PCN 5	DMSP								
17	070015Z	22.6N 107.9E	SAT	(IR DATA						PCN 5	DMSP								

TYPHOON VIRGINIA  
FIX POSITIONS FOR CYCLONE NO. 24  
1200Z 12 SEP TO 0000Z 16 SEP

FIX NO.	TIME	POSIT	FIX CAT	ACCHY NAV-MET	FIX LVL	MAX OBS			MAX OBS			OBS MIN SLP	MIN 700MB MGT	FLT LVL TI/TO	EYE FORM	ORIENT- IAT IUN	EYE DIA	POSIT OF MAUAR	MSN NMRH
						DIR	VEL	BRG	RNG	VEL	BRG								
1	092139Z	22.0N 153.4E	SAT	(11.0/1.0 /						PCN 6	DMSP								
2	101021Z	23.0N 152.8E	SAT	(IR DATA						PCN 6	DMSP								
3	102302Z	25.5N 150.8E	SAT	(11.0/1.0 /S						PCN 5	DMSP								
4	111144Z	27.2N 149.8E	SAT	(IR DATA						PCN 5	DMSP								
5	112243Z	28.9N 149.1E	SAT	(12.0/2.0 /D1.0/24HRS)						PCN 5	DMSP								
6	121126Z	30.1N 150.6E	SAT	(IR DATA						PCN 3	DMSP								
7	121126Z	30.5N 150.7E	SAT	(IR DATA						PCN 5	DMSP								
8	121510Z	31.1N 151.2E	SAT	(IR DATA						PCN 5	DMSP								
9	121845Z	31.0N 151.0E	SAT	(IR DATA						NOAA-2									
10	122153Z	32.0N 152.2E	P	10 2 700 270 80 240						25	70 190	20	980	293	14 11	CTMC	40		1
11	122226Z	32.3N 152.3E	SAT	(14.0/4.0 /						PCN 3	DMSP								
12	130211Z	32.7N 153.0E	SAT	(IR DATA						PCN 3	DMSP								
13	130220Z	32.6N 152.8E	P	10 3 700 300 75 230						30	80 230	25	980	294	15 11	CTMC	40		1
14	130750Z	32.3N 151.6E	SAT	(13.5/3.5 /S						NON	DMSP								
15	131107Z	33.8N 153.8E	SAT	(IR DATA						NOAA-2									
16	131107Z	33.7N 153.9E	SAT	(IR DATA						PCN 3	DMSP								
17	131452Z	34.2N 154.4E	SAT	(IR DATA						PCN 5	DMSP								
18	131457Z	34.5N 154.2E	P	5 5 700 30 50 320						35	-	-	975	286	17 10	ETIP	N-S	60X30	2
19	132005Z	34.1N 154.0E	SAT	(IR DATA						NON	DMSP								
20	132207Z	35.3N 155.1E	SAT	(14.0/4.0-/S						PNAAA-2									
21	132207Z	35.2N 155.2E	SAT	(14.0/4.0-/						PCN 1	DMSP								
22	140152Z	35.7N 155.7E	SAT	(IR DATA						PCN 1	DMSP								
23	140330Z	35.9N 155.8E	P	10 4 700 330 80 280						30	80 280	70	971	282	16 6	CTMC	40		3
24	140545Z	35.3N 155.0E	SAT	(13.5/3.5 /S						NON	DMSP								
25	140730Z	36.8N 156.3E	P	- 700 280 90 180						NOAA-2									
26	141049Z	37.0N 156.1E	SAT	(IR DATA						PCN 2	DMSP								
27	141049Z	37.0N 156.4E	SAT	(IR DATA						PCN 3	DMSP								
28	142039Z	39.1N 155.6E	SAT	(13.0/4.0 /W1.0/24HRS)						PCN 1	DMSP								
29	142149Z	38.8N 155.4E	SAT	(IR DATA						PCN 1	DMSP								
30	150134Z	39.6N 155.1E	SAT	(IR DATA						PCN 1	DMSP								
31	150540Z	38.2N 154.5E	SAT	(13.0/3.5 /W0.5/24HRS)						NOAA-2									
32	151031Z	39.5N 153.5E	SAT	(IR DATA						PCN 4	DMSP								
33	152010Z	40.0N 154.5E	SAT	(IR DATA						NOAA-2									
34	160115Z	41.6N 154.5E	SAT	(11.5/1.5 /						PCN 4	DMSP								

TROPICAL STORM WENDY  
FIX POSITIONS FOR CYCLONE NO. 25  
0600Z 24 SEP TO 0000Z 30 SEP

FIX NO.	TIME	POSIT	FIX CAT	ACCHY NAV-MET	FIX LVL	MAX OBS			MAX OBS			OBS MIN SLP	MIN 700MB MGT	FLT LVL TI/TO	EYE FORM	ORIENT- IAT IUN	EYE DIA	POSIT OF MAUAR	MSN NMRH
						DIR	VEL	BRG	RNG	VEL	BRG								
1	190142Z	15.0N 145.9E	SAT	(IR DATA						PCN 5	DMSP								
2	192104Z	15.5N 145.6E	SAT	(11.0/1.0 /						PCN 5	DMSP								
3	192159Z	15.5N 145.5E	SAT	(IR DATA						PCN 5	DMSP								
4	201041Z	14.5N 144.8E	SAT	(IR DATA						PCN 6	DMSP								
5	201423Z	14.3N 144.6E	SAT	(IR DATA						PCN 6	DMSP								
6	202049Z	15.1N 140.5E	SAT	(11.0/1.0 /S						PCN 5	DMSP								
7	202322Z	16.0N 139.6E	SAT	(IR DATA						PCN 5	DMSP								
8	210305Z	16.0N 139.3E	SAT	(IR DATA						PCN 5	DMSP								
9	211204Z	13.3N 136.6E	SAT	(IR DATA						PCN 6	DMSP								
10	212304Z	13.2N 137.3E	SAT	(IR DATA						PCN 3	DMSP								
11	22146Z	14.2N 132.9E	SAT	(IR DATA						PCN 6	DMSP								
12	230027Z	15.1N 129.3E	SAT	(11.0/1.0 /						PCN 5	DMSP								
13	240009Z	17.6N 124.1E	SAT	(12.0/2.0 /						PCN 5	DMSP								
14	240009Z	17.8N 124.0E	SAT	(12.0/2.0 /						PCN 5	DMSP								
15	240009Z	17.8N 123.9E	SAT	(12.0/2.0 /D1.0/24HRS)						PCN 5	DMSP								
16	240553Z	17.7N 124.1E	P	3 5 700 40 30 320						60	25 20	60	1001	306	8 9	-	-	-	3
17	241251Z	16.5N 122.9E	SAT	(IR DATA						PCN 3	DMSP								
18	241251Z	14.3N 123.0E	SAT	(IR DATA						PCN 6	DMSP								
19	241251Z	16.2N 123.3E	SAT	(IR DATA						PCN 3	DMSP								
20	241700Z	17.8N 122.6E	P	5 2 700 160 50 40						40	-	-	1003	308	11 10	-	-	-	4
21	242152Z	14.0N 122.7E	P	5 2 700 140 40 50						50	499	304	12 10	-	-	-	-	-	4
22	242351Z	14.0N 122.0E	SAT	(11.5/2.0/W1.0/24HRS)						PCN 5	DMSP								
23	242351Z	14.3N 121.9E	SAT	(13.0/3.0-/D1.0/24HRS)						PCN 3	DMSP								
24	242351Z	14.2N 121.8E	SAT	(12.0/2.0-/S						PCN 3	DMSP								
25	250322Z	14.0N 121.0E	SAT	(IR DATA						PCN 1	DMSP								
26	250425Z	14.1N 120.9E	P	1 2 600 290 40 220						25	30 220	25	995	430	2	-	-	-	5
27	251232Z	14.4N 120.7E	SAT	(IR DATA						PCN 5	DMSP								
28	251232Z	14.5N 121.0E	SAT	(IR DATA						PCN 3	DMSP								
29	251232Z	14.3N 120.9E	SAT	(IR DATA						PCN 5	DMSP								
30	251452Z	14.2N 121.2E	P	1 3 600 140 37 50						120	-	-	998	431	-	-	-	-	5
31	252322Z	14.2N 120.9E	SAT	(11.5/2.5-/W1.5/24HRS)						PCN 5	DMSP								
32	252332Z	14.9N 120.3E	SAT	(12.0/2.0-/S						PCN 3	DMSP								

TROPICAL STORM WENDY  
 FIX POSITIONS FOR CYCLONE NO. 25  
 0600Z 24 SEP TO 0000Z 30 SEP

FIX NO.	TIME	POSII	FIX CAT	ACLYN MEI	FIX LVL	MAX OBS				MAX OBS			OBS MIN SLP	MIN /00MB HGT	FLI LVL TI/TO	EYE FORM	ORIENT TATION	EYE DIA	POSIT UP NAUAR	MSN NUM
						DIR	VEL	WIND	WIND	VEL	WIND	WIND								
33	260114Z	19.8N 119.4E	SAT	(12.0/2.0 /00.5/24HRS)																
34	260314Z	19.8N 120.5E	SAT	(IK DATA)																
35	260336Z	19.8N 120.9E	P	2 1 700	230	40	130	15	3	140	15	997	-	-	-	CIRC		25		6
36	260914Z	20.0N 120.9E	P	2 1 700	170	55	90	35	50	290	15	993	303	14	12	CIRC		30		6
37	261200Z	20.1N 120.2E	SAT																	
38	261214Z	20.6N 120.3E	SAT	(IK DATA)																
39	261214Z	20.6N 120.7E	SAT	(IK DATA)																
40	261555Z	21.0N 120.5E	SAT	(IK DATA)																
41	262000Z	21.2N 120.5E	LMDR	- 61111															22.6N 120.3E	
42	262100Z	21.3N 120.6E	LMDR	- 61111															22.6N 120.3E	
43	262200Z	21.3N 120.5E	LMDR	- 51111															22.6N 120.3E	
44	262220Z	21.0N 120.4E	P	1 1 700	310	50	200	33	4	90	20	992	303	12	10	-	-	-	22.6N 120.3E	7
45	270000Z	21.4N 120.5E	LMDR	- 11111																
46	270056Z	21.2N 121.1E	SAT	(13.0/3.0 /00.5/24HRS)																
47	270255Z	21.3N 121.0E	SAT	(14.0/4.0 /02.0/24HRS)																
48	271100Z	22.2N 121.8E	LMDR	- 24922																
49	271249Z	22.8N 121.8E	P	2 1 700	270	65	170	20	-	-	-	984	296	17	10	CTMC		20		8
50	271256Z	23.0N 122.0E	SAT	(IK DATA)																
51	271337Z	22.6N 121.7E	SAT	(IK DATA)																
52	271347Z	22.8N 122.1E	SAT	(IK DATA)																
53	271536Z	23.2N 122.1E	SAT	(IK DATA)																
54	271544Z	23.2N 122.2E	P	2 2 700	290	75	180	25	-	-	-	986	296	17	11	CTMC		35		8
55	271600Z	23.3N 122.1E	LMDR	- 11112																24.8N 125.3E
56	271700Z	23.5N 122.1E	LMDR	- 61112																24.3N 124.2E
57	271700Z	23.4N 122.2E	LMDR	- 71114																24.8N 125.3E
58	271800Z	23.4N 122.2E	LMDR	- 10932																23.9N 121.6E
59	271800Z	23.6N 122.1E	LMDR	- 51112																24.3N 124.2E
60	271800Z	23.5N 122.3E	LMDR	- 11114																24.8N 125.3E
61	271900Z	23.6N 122.2E	LMDR	-																24.8N 125.3E
62	271900Z	23.6N 122.2E	LMDR	- 51112																24.8N 125.3E
63	271900Z	23.7N 122.3E	LMDR	- 11111																24.8N 125.3E
64	271950Z	23.7N 122.2E	LMDR	- 21912																23.9N 121.6E
65	272000Z	23.7N 122.2E	LMDR	- 30903																24.8N 125.3E
66	272000Z	23.8N 122.5E	LMDR	- 11111																24.8N 125.3E
67	272050Z	23.7N 122.3E	LMDR	- 21922																23.9N 121.6E
68	272100Z	23.8N 122.3E	LMDR	- 11111																24.8N 125.3E
69	272200Z	24.0N 122.5E	LMDR	- 51113																24.8N 125.3E
70	272217Z	23.7N 122.6E	P	1 2 700	290	50	210	35	5	90	10	987	298	14	-	-	-	-		9
71	272300Z	24.0N 122.2E	LMDR	- 51114																24.3N 124.2E
72	272300Z	23.9N 122.5E	LMDR	- 51112																24.8N 125.3E
73	280000Z	24.1N 122.4E	LMDR	- 51113																24.3N 124.2E
74	280000Z	24.0N 122.5E	SAT	(13.5/3.5 /00.5/24HRS)																24.8N 125.3E
75	280038Z	24.3N 122.8E	SAT	(13.5/3.5 /00.5/24HRS)																
76	280100Z	24.2N 122.5E	LMDR	- 51112																24.3N 124.2E
77	280100Z	24.2N 122.7E	LMDR	- 51113																24.8N 125.3E
78	280200Z	24.3N 122.2E	LMDR	- POUK FIX																26.2N 127.7E
79	280200Z	24.4N 122.6E	LMDR	- 51112																24.8N 125.3E
80	280200Z	24.2N 122.3E	LMDR	- 51113																24.8N 125.3E
81	280237Z	24.5N 122.2E	SAT	(13.0/4.0 /01.0/24HRS)																
82	280247Z	24.5N 122.2E	P	1 3 700	230	70	140	25	-	-	-	986	297	13	-	-	-	-		9
83	280300Z	24.5N 122.6E	LMDR	- 51112																24.3N 124.2E
84	280300Z	24.6N 122.4E	LMDR	- 51113																24.8N 125.3E
85	280300Z	24.8N 122.1E	LMDR	- 51112																24.3N 124.2E
86	280700Z	24.8N 122.1E	LMDR	- 22853																23.9N 121.6E
87	280700Z	24.8N 122.2E	LMDR	- 51112																24.3N 124.2E
88	280700Z	24.7N 122.3E	LMDR	- 51113																24.8N 125.3E
89	280800Z	24.8N 122.2E	LMDR	- 22914																24.3N 124.2E
90	280800Z	24.8N 122.2E	LMDR	- 51113																24.8N 125.3E
91	280900Z	24.9N 122.2E	LMDR	- 20733																23.9N 121.6E
92	280900Z	24.8N 122.3E	LMDR	- 51113																24.8N 125.3E
93	280900Z	24.9N 122.2E	LMDR	- 21874																24.3N 124.2E
94	280900Z	24.8N 122.1E	LMDR	- POUK FIX																26.2N 127.7E
95	281000Z	24.9N 122.1E	LMDR	- 51114																24.3N 124.2E
96	281000Z	24.9N 122.2E	LMDR	- 01111																24.8N 125.3E
97	281100Z	24.9N 121.8E	LMDR	- POUK FIX																26.2N 127.7E
98	281100Z	25.1N 121.9E	LMDR	- 51111																24.8N 125.3E
99	281157Z	25.0N 123.0E	SAT	(IK DATA)																
100	281200Z	25.0N 121.9E	LMDR	-																
101	281200Z	25.0N 121.7E	LMDR	- 51111																24.3N 124.2E
102	281300Z	25.0N 121.6E	LMDR	- 51112																24.8N 125.3E
103	281319Z	24.9N 121.8E	SAT	(IK DATA)																24.3N 124.2E
104	281359Z	24.5N 122.5E	P	5 10 700	160	45	70	40	-	-	-	-	-	-	-	-	-	-		10
105	290019Z	25.2N 120.9E	SAT	(IK DATA)																
106	290019Z	25.1N 120.8E	SAT	(11.5/2.5 /01.0/24HRS)																
107	290019Z	25.2N 120.6E	SAT	(13.0/3.0 / / HRS)																
108	290359Z	24.8N 120.7E	SAT	(11.5/3.0 / / HRS)																
109	290359Z	25.0N 120.6E	SAT	(IK DATA)																
110	291301Z	25.4N 120.7E	SAT	(IK DATA)																
111	291301Z	25.5N 120.6E	SAT	(IK DATA)																
112	291301Z	25.4N 121.1E	SAT	(IK DATA)																
113	300001Z	26.0N 120.1E	SAT	(11.0/1.5 /00.5/24HRS)																
114	300001Z	25.9N 121.2E	SAT	(11.5/2.5 /01.5/24HRS)																
115	300001Z	26.0N 121.0E	SAT	(11.5/2.5 -01.5/24HRS)																
116	300341Z	25.9N 121.5E	SAT	(IK DATA)																
117	300341Z	25.8N 121.4E	SAT	(IK DATA)																



TYPHOON BESS  
FIX POSITIONS FOR CYCLONE NO. 27  
0600Z 08 OCT TO 0600Z 14 OCT

FIX NO.	TIME	POS (L, O)	FIX CAT	ACCHY NAV-MET	FIX LVL	MAX OBS				MAX OBS			OBS MIN SLP	MIN (UOM) MGT	FLT LVL	EYE FORH	ORIEN-TATION	EYE DIA	POSIT OF MAJAN	MSN NMBK
						DIR	VEL	BKG	MNG	VEL	BRG	RNG								
1	052258Z	10.0N 149.0E	SAT	(11.5/1.5 / 00.5/24HRS)																
2	061132Z	11.0N 146.0E	SAT	(IR DATA)																
3	062335Z	10.0N 143.7E	SAT	(11.0/1.0 / / HRS)																
4	062353Z	10.5N 142.4E	SAT	(12.0/2.0 / 00.5/24HRS)																
5	070131Z	10.0N 143.2E	SAT	(IR DATA)																
6	071034Z	11.0N 139.0E	SAT	(IR DATA)																
7	072126Z	10.6N 136.5E	SAT	(IR DATA)																
8	072132Z	11.8N 136.9E	SAT	(11.5/1.5 / 00.5/24HRS)																
9	072253Z	11.0N 136.0E	SAT	(12.5/2.5 / 00.5/24HRS)																
10	072316Z	12.0N 136.5E	SAT	(IR DATA)																
11	072316Z	11.8N 135.1E	SAT	(11.5/1.5 / / HRS)																
12	080254Z	11.9N 135.9E	SAT	(IR DATA)																
13	080440Z	11.9N 135.3E	P	3 3 1500	140	30	70	30	30	30	20	999	-	25	25	-	-	-	1	
14	080920Z	12.0N 134.1E	P	2 8 700	140	45	40	100	35	70	100	1003	308	10	11	-	-	-	1	
15	081014Z	13.1N 133.0E	SAT	(IR DATA)																
16	081015Z	12.1N 133.6E	SAT	(IR DATA)																
17	081127Z	13.2N 133.5E	SAT	(IR DATA)																
18	081158Z	12.3N 133.4E	SAT	(IR DATA)																
19	081535Z	12.6N 133.2E	SAT	(IR DATA)																
20	081740Z	12.7N 131.6E	P	2 5 700	320	20	180	20	-	-	-	1002	307	8	8	CTRC	-	35	2	
21	082058Z	13.0N 130.2E	P	2 2 700	320	30	120	30	-	-	-	999	308	10	9	CTRC	-	30	2	
22	082116Z	13.5N 130.7E	SAT	(IR DATA)																
23	082258Z	15.4N 132.3E	SAT	(12.5/2.5 / 01.0/24HRS)																
24	082300Z	15.7N 131.8E	SAT	(12.0/2.0 / 00.5/24HRS)																
25	082347Z	13.5N 130.6E	SAT	(12.5/2.5 / 24HRS)																
26	090235Z	16.0N 130.7E	SAT	(IR DATA)																
27	090235Z	16.4N 131.1E	SAT	(IR DATA)																
28	090320Z	16.0N 130.3E	P	10 10 700	170	50	120	57	35	120	30	998	306	11	10	ELIP	SE-NW	40X15	3	
29	090830Z	16.2N 128.8E	P	10 40 700	-	-	-	-	40	340	72	995	305	12	-	-	-	-	3	
30	090959Z	16.7N 128.1E	SAT	(IR DATA)																
31	090959Z	16.1N 128.4E	SAT	(IR DATA)																
32	091139Z	16.3N 127.6E	SAT	(IR DATA)																
33	091139Z	15.4N 127.6E	SAT	(IR DATA)																
34	091225Z	16.0N 128.0E	SAT	(IR DATA)																
35	091517Z	16.3N 126.8E	SAT	(IR DATA)																
36	091517Z	16.2N 126.7E	SAT	(IR DATA)																
37	091730Z	15.9N 127.6E	P	5 5 700	190	30	90	47	-	-	-	987	297	13	-	-	-	-	4	
38	092224Z	16.7N 126.5E	P	5 5 700	160	60	80	100	5	80	100	986	298	13	-	-	-	-	4	
39	100021Z	16.6N 126.4E	SAT	(13.0/3.0 / 01.0/24HRS)																
40	100452Z	16.7N 125.5E	P	3 1 700	140	60	70	85	65	70	100	985	297	13	13	-	-	-	5	
41	100358Z	15.6N 120.3E	SAT	(13.0/3.0 / / HRS)																
42	100907Z	17.2N 125.2E	P	2 2 700	160	65	50	50	75	130	70	980	293	14	12	CTRC	-	20	5	
43	101303Z	17.1N 124.6E	SAT	(IR DATA)																
44	101319Z	18.0N 124.0E	SAT	(IR DATA)																
45	101652Z	17.6N 123.3E	P	10 25 700	190	35	90	20	-	-	-	981	288	17	15	-	-	-	6	
46	102227Z	17.5N 122.7E	SAT	(15.0/5.0 / 02.0/24HRS)																
47	102227Z	17.1N 122.5E	SAT	(15.5/5.5 / / HRS)																
48	102227Z	17.5N 122.5E	SAT	(13.5/3.5 / 00.5/18HRS)																
49	110003Z	18.1N 122.1E	SAT	(IR DATA)																
50	110003Z	18.0N 122.2E	SAT	(15.0/5.0 / / HRS)																
51	110003Z	17.8N 122.2E	SAT	(IR DATA)																
52	110136Z	18.0N 121.3E	SAT	(14.0/4.0 / 01.5/24HRS)																
53	110340Z	17.9N 121.0E	SAT	(IR DATA)																
54	110340Z	17.7N 121.3E	SAT	(IR DATA)																
55	110340Z	18.0N 121.9E	SAT	(IR DATA)																
56	111110Z	18.5N 119.9E	SAT	(IR DATA)																
57	111110Z	18.5N 119.4E	SAT	(IR DATA)																
58	111221Z	18.0N 120.0E	SAT	(IR DATA)																
59	111244Z	18.6N 119.6E	SAT	(IR DATA)																
60	111621Z	19.0N 119.1E	SAT	(IR DATA)																
61	111652Z	19.2N 119.5E	P	2 2 700	230	60	170	50	-	-	-	982	293	13	13	-	-	-	7	
62	112212Z	19.0N 118.5E	SAT	(IR DATA)																
63	112233Z	18.8N 118.5E	P	2 1 700	130	75	30	80	5	30	30	980	293	13	13	-	-	-	7	
64	112344Z	18.5N 118.0E	SAT	(13.5/4.5 / 01.5/24HRS)																
65	120036Z	19.0N 118.0E	SAT	(13.5/4.0 / 00.5/24HRS)																
66	120126Z	19.3N 119.0E	SAT	(14.5/4.5 / 00.5/24HRS)																
67	120321Z	19.1N 117.8E	SAT	(IR DATA)																
68	120321Z	19.0N 118.1E	SAT	(IR DATA)																
69	120412Z	19.1N 117.1E	P	3 3 700	230	75	120	40	5	120	45	982	294	13	13	-	-	-	8	
70	121055Z	19.0N 117.5E	SAT	(IR DATA)																
71	121055Z	19.8N 116.9E	SAT	(IR DATA)																
72	121055Z	17.8N 116.3E	SAT	(IR DATA)																
73	121226Z	19.0N 117.3E	SAT	(IR DATA)																
74	121226Z	19.3N 116.8E	SAT	(IR DATA)																
75	121316Z	19.5N 114.8E	SAT	(IR DATA)																
76	121602Z	19.4N 116.1E	SAT	(IR DATA)																
77	121602Z	19.2N 114.5E	SAT	(IR DATA)																
78	121602Z	20.0N 114.0E	SAT	(IR DATA)																
79	122338Z	19.2N 112.5E	SAT	(IR DATA)																
80	122338Z	20.0N 112.9E	SAT	(12.5/3.0 / 02.0/24HRS)																
81	130108Z	19.1N 113.2E	SAT	(13.0/3.0 / / HRS)																
82	130108Z	19.9N 112.2E	SAT	(IR DATA)																
83	130130Z	19.2N 111.1E	SAT	(12.0/3.0 / 01.0/24HRS)																
84	130442Z	19.0N 112.8E	SAT	(IR DATA)																
85	130442Z	18.4N 112.6E	SAT	(IR DATA)																
86	131217Z	20.2N 110.0E	SAT	(IR DATA)																
87	131221Z	19.3N 110.6E	SAT	(IR DATA)																
88	131221Z	19.8N 110.0E	SAT	(IR DATA)																
89	131349Z	18.6N 109.9E	SAT	(IR DATA)																
90	131725Z	19.0N 108.2E	SAT	(IR DATA)																
91	132323Z	19.1N 107.2E	SAT	(11.0/1.5 / 01.0/24HRS)																
92	140033Z	12.8N 133.5E	SAT	(12.0/2.0 / 00.5/24HRS)																
93	140050Z	19.1N 106.6E	SAT	(11.5/2.5 / 01.5/24HRS)																
94	140050Z	19.1N 107.1E	SAT	(IR DATA)																
95	140425Z	19.1N 107.1E	SAT	(IR DATA)																
96	141114Z	11.7N 131.5E	SAT	(IR DATA)																

TYPHOON CARMEN  
FIX POSITIONS FOR CYCLONE NO. 28  
1200Z 14 OCT TO 1200Z 19 OCT

FIX NO.	TIME	POS JJ	FIX CAT	ACLYY NAV-MET	FIX LVL	MAX OBS DIR	FLY LVL	WIND BRG	MAX OBS SFC WIND VEL	MAX OBS BRG	WIND RNG	UBS MIN SLP	MIN 700MB HGT	FLT LVL	FLY TI/TO	EYE FORM	ORIENTI-ON	EYE DIA	POSIT OF HAUAR	MSN NMMH
1	122326Z	12.2N 132.8E	SAT	(11.0/1.0 /					MRS)		PCN 5	DMSP								
2	130302Z	12.2N 132.4E	SAT	(11K DATA					)		PCN 5	DMSP								
3	131039Z	11.5N 132.9E	SAT	(11K DATA					)		PCN 6	DMSP								
4	131157Z	21.2N 114.5E	SAT	(11K DATA					)		NOAA-3		(CONF 01)							
5	131208Z	11.5N 132.3E	SAT	(11K DATA					)		PCN 6	DMSP								
6	131544Z	11.5N 133.0E	SAT	(11K DATA					)		PCN 6	DMSP								
7	132141Z	11.7N 131.6E	SAT	(11.5/1.5 /00.5/22HRS)							PCN 5	DMSP								
8	132308Z	11.3N 133.1E	SAT	(11.0/1.0 /					HRS)		PCN 5	DMSP								
9	132308Z	11.7N 131.6E	SAT	(11K DATA					)		PCN 5	DMSP								
10	140244Z	12.5N 131.5E	SAT	(11K DATA					)		PCN 5	DMSP								
11	141024Z	11.7N 130.3E	SAT	(11K DATA					)		PCN 6	DMSP								
12	141149Z	12.1N 130.2E	SAT	(11K DATA					)		PCN 5	DMSP								
13	141525Z	12.0N 129.0E	SAT	(11K DATA					)		PCN 6	DMSP								
14	141525Z	12.2N 129.8E	SAT	(11K DATA					)		PCN 5	DMSP								
15	142307Z	12.4N 126.0E	SAT	(11K DATA					)		PCN 6	DMSP								
16	150031Z	11.6N 126.8E	SAT	(12.5/2.5 /					HRS)		PCN 5	DMSP								
17	150031Z	11.8N 126.1E	SAT	(13.0/3.0-/01.5/27HRS)							PCN 5	DMSP								
18	150225Z	12.5N 128.0E	SAT	(11K DATA					)		PCN 5	DMSP								
19	151009Z	13.4N 126.9E	SAT	(11K DATA					)		PCN 5	DMSP								
20	151228Z	13.4N 125.3E	P	5 20 700									993	303	14					
21	151507Z	14.4N 125.7E	SAT	(11K DATA					)		PCN 5	DMSP								
22	151507Z	14.7N 125.2E	SAT	(11K DATA					)		PCN 5	DMSP								
23	151528Z	14.3N 126.0E	P	5 5 700	110	55	30	80					985	300	12	8				
24	152200Z	14.7N 123.8E	LHDK	- 1450/															13.1N 123.7E	
25	152252Z	16.0N 123.6E	SAT	(11K DATA					)		PCN 6	DMSP								
26	160013Z	15.4N 123.7E	SAT	(14.5/4.5-/					HRS)		PCN 1	DMSP								
27	160013Z	15.5N 123.8E	SAT	(14.5/4.5-/01.5/24HRS)							PCN 1	DMSP								
28	160210Z	15.5N 123.4E	LHDK	- CIRCULAR EYE, 40 NM DIAM, 90 PERCENT WALL CLOUD															18.2N 120.5E	
29	160300Z	15.6N 123.1E	LHDK	- ELLIPTICAL EYE NW-SE, 60 PERCENT WALL CLOUD															18.1N 120.5E	
30	160348Z	15.6N 123.6E	SAT	(15.0/5.0 /					HRS)		PCN 1	DMSP								
31	160400Z	15.6N 122.9E	LHDK	- ELLIPTICAL EYE, 50 PERCENT WALL CLOUD															18.1N 120.5E	
32	160448Z	15.4N 122.9E	P	5 5 700	170	62	100	80	60	100	110	974	289	14	10	ELIP	N-S	50X40		
33	160710Z	16.3N 122.7E	LHDK	- CIRCULAR EYE, 40 NM DIAM, 80 PERCENT WALL CLOUD															18.1N 120.5E	
34	160810Z	16.6N 122.6E	LHDK	- ELLIPTICAL EYE, NFR WALL CLOUD															18.1N 120.5E	
35	160910Z	16.3N 122.3E	LHDK	- POSSIBLE EYE, HEAVY ATTENUATION															18.1N 120.5E	
36	161131Z	16.0N 121.8E	SAT	(11K DATA					)		NOAA-3		(CONF 02)							
37	161135Z	16.4N 121.1E	SAT	(11K DATA					)		PCN 4	DMSP								
38	161254Z	16.3N 121.9E	SAT	(11K DATA					)		PCN 6	DMSP								
39	161254Z	16.4N 121.4E	SAT	(11K DATA					)		PCN 5	DMSP								
40	161630Z	16.9N 120.1E	SAT	(11K DATA					)		PCN 1	DMSP								
41	161930Z	17.4N 119.8E	LHDK	- CIRCULAR EYE, 30 NM DIAM, 60 PERCENT WALL CLOUD															16.6N 120.3E	
42	162237Z	17.3N 119.1E	SAT	(14.0/5.0-/01.0/24HRS)							PCN 1	DMSP								
43	162237Z	18.0N 118.6E	SAT	(11K DATA					)		PCN 3	DMSP								
44	162237Z	17.8N 118.4E	SAT	(14.5/5.0-/00.5/19HRS)							PCN 1	DMSP								
45	162355Z	18.5N 118.6E	SAT	(12.5/3.5-/01.0/24HRS)							PCN 5	DMSP								
46	162355Z	18.0N 118.3E	SAT	(14.5/4.5-/00.5/24HRS)							PCN 1	DMSP								
47	170329Z	18.4N 117.2E	SAT	(15.0/5.5-/00.5/24HRS)							PCN 1	DMSP								
48	170330Z	18.4N 117.8E	SAT	(12.5/3.5-/01.0/24HRS)							PCN 3	DMSP								
49	170330Z	18.4N 117.8E	SAT	(11K DATA					)		PCN 3	DMSP								
50	170330Z	18.4N 117.9E	SAT	(11K DATA					)		PCN 1	DMSP								
51	170330Z	18.1N 117.6E	SAT	(11K DATA					)		PCN 3	DMSP								
52	170531Z	18.4N 117.5E	P	3 5 700	170	45	70	100	50	70	85	980	292	14	13					
53	170948Z	18.6N 116.9E	P	5 5 700	130	48	50	90	55	50	80	979	291	14	12	ELIP	N-S	70X40		
54	171120Z	18.7N 116.8E	SAT	(11K DATA					)		PCN 2	DMSP								
55	171120Z	18.5N 116.8E	SAT	(11K DATA					)		PCN 4	DMSP								
56	171236Z	18.9N 116.5E	SAT	(11K DATA					)		PCN 2	DMSP								
57	171236Z	19.2N 116.4E	SAT	(11K DATA					)		PCN 1	DMSP								
58	171236Z	18.9N 116.6E	SAT	(11K DATA					)		PCN 1	DMSP								
59	171243Z	20.0N 117.0E	SAT	(11K DATA					)		NOAA-3		(CONF 01)							
60	171611Z	19.0N 116.0E	SAT	(11K DATA					)		PCN 2	DMSP								
61	171611Z	19.6N 116.2E	SAT	(11K DATA					)		PCN 6	DMSP								
62	171611Z	19.3N 116.1E	SAT	(11K DATA					)		PCN 3	DMSP								
63	171611Z	19.1N 115.8E	SAT	(11K DATA					)		PCN 5	DMSP								
64	171800Z	19.8N 115.9E	LHDK	- ////																
65	172212Z	19.7N 115.6E	SAT	(11K DATA					)		PCN 3	DMSP							22.3N 114.2E	
66	172212Z	19.4N 115.3E	SAT	(15.5/5.5 /01.0/24HRS)							PCN 2	DMSP								
67	180000Z	20.2N 115.3E	LHDK	- 20974																22.3N 114.2E
68	180200Z	20.1N 114.7E	LHDK	- 35774																22.3N 114.2E
69	180300Z	20.1N 114.8E	LHDK	- ////																22.3N 114.2E
70	180311Z	20.1N 115.4E	SAT	(14.5/4.5 /02.0/27HRS)							PCN 3	DMSP								
71	180311Z	19.9N 115.3E	SAT	(15.0/5.0-/00.5/27HRS)							PCN 1	DMSP								
72	180311Z	19.9N 115.5E	SAT	(11K DATA					)		PCN 3	DMSP								
73	180400Z	20.3N 114.9E	LHDK	- ////																22.3N 114.2E
74	180600Z	20.5N 115.1E	LHDK	- ////																22.3N 114.2E
75	180700Z	20.3N 115.0E	LHDK	- ////																22.3N 114.2E
76	180800Z	20.3N 114.9E	LHDK	- ////																22.3N 114.2E
77	180900Z	20.3N 114.9E	LHDK	- ////																22.3N 114.2E
78	181000Z	20.4N 114.8E	LHDK	- 20974																22.3N 114.2E
79	181100Z	20.5N 114.8E	LHDK	- 20974																22.3N 114.2E
80	181104Z	20.0N 114.2E	SAT	(11K DATA					)		PCN 2	DMSP								
81	181104Z	20.3N 114.8E	SAT	(11K DATA					)		PCN 2	DMSP								
82	181104Z	20.3N 114.6E	SAT	(11K DATA					)		PCN 2	DMSP								
83	181200Z	20.5N 114.5E	LHDK	- 20973																
84	181300Z	20.5N 114.3E	LHDK	- 20974																22.3N 114.2E
85	181400Z	20.5N 114.6E	LHDK	- 21914																22.3N 114.2E
86	181500Z	20.5N 114.5E	LHDK	- 21923																22.3N 114.2E
87	181522Z	20.8N 114.5E	SAT	(11K DATA					)		PCN 1	DMSP								
88	181522Z	20.6N 114.3E	SAT	(11K DATA					)		PCN 1	DMSP								
89	181522Z	20.6N 114.6E	SAT	(11K DATA					)		PCN 3	DMSP								
90	181600Z	20.6N 114.4E	LHDK	- 21923</																

TYPHOON GARMEN  
FIX POSITIONS FOR CYCLONE NO. 28  
1200Z 14 OCT TO 1200Z 19 OCT

FIX NO.	TIME	POSIT	FIX CAT	ACCKY NAV-MET	FIX LVL	MAX OBS FLT DIR	OBS LVL	MAX OBS WIND VLL	MAX OBS WIND BKG	MAX OBS WIND RNG	SFC WIND VLL	MAX OBS WIND BKG	MAX OBS WIND RNG	OBS MIN SLP	MIN MGT	FLT LVL	FLY /10	EYE FORM	ORLEN-TATION	EYE DIA	POSIT OF RADAR	MSN NMMH
101	190434Z	21.4N 113.3E	SAT	(IR DATA)																		
102	190500Z	21.4N 112.9E	LHMN	- 20913																		
103	190700Z	21.4N 112.7E	LHMN	- 20913																	22.3N 114.2E	
104	191231Z	21.3N 111.9E	SAT	(IR DATA)																		22.3N 114.2E
105	191308Z	22.0N 112.0E	SAT	(IR DATA)																		

TYPHOON BELLA  
FIX POSITIONS FOR CYCLONE NO. 29  
0000Z 21 OCT TO 0000Z 27 OCT

FIX NO.	TIME	POSIT	FIX CAT	ACCKY NAV-MET	FIX LVL	MAX OBS FLT DIR	OBS LVL	MAX OBS WIND VLL	MAX OBS WIND BKG	MAX OBS WIND RNG	SFC WIND VLL	MAX OBS WIND BKG	MAX OBS WIND RNG	OBS MIN SLP	MIN MGT	FLT LVL	FLY /10	EYE FORM	ORLEN-TATION	EYE DIA	POSIT OF RADAR	MSN NMMH	
1	172155Z	9.3N 150.8E	SAT	(11.0/1.0 / / HRS)																			
2	182206Z	9.8N 143.1E	SAT	(IR DATA)																			
3	182225Z	11.0N 142.0E	SAT	(11.5/1.5 /00.5/24HRS)																			
4	182318Z	11.3N 142.9E	SAT	(11.5/1.5 /00.5/24HRS)																			
5	190252Z	11.0N 141.6E	SAT	(IR DATA)																			
6	190907Z	11.2N 139.7E	SAT	(IR DATA)																			
7	191049Z	12.0N 139.3E	SAT	(IR DATA)																			
8	191110Z	13.5N 137.5E	SAT	(IR DATA)																			
9	191200Z	12.2N 138.8E	SAT	(IR DATA)																			
10	191534Z	13.0N 137.6E	SAT	(IR DATA)																			
11	192150Z	11.8N 135.0E	SAT	(12.0/2.5 / / HRS)																			
12	192150Z	13.5N 135.8E	SAT	(11.5/1.5 /5 /24HRS)																			
13	192300Z	13.4N 135.1E	SAT	(11.5/1.5 / / HRS)																			
14	192300Z	13.7N 135.5E	SAT	(IR DATA)																			
15	192335Z	12.0N 134.6E	SAT	(12.0/2.0 /00.5/24HRS)																			
16	200234Z	13.7N 133.7E	SAT	(IR DATA)																			
17	201033Z	12.0N 132.8E	SAT	(IR DATA)																			
18	201141Z	12.4N 132.8E	SAT	(IR DATA)																			
19	201219Z	11.5N 131.5E	SAT	(IR DATA)																			
20	201515Z	12.5N 132.0E	SAT	(IR DATA)																			
21	202135Z	12.0N 128.9E	SAT	(IR DATA)																			
22	210023Z	13.8N 129.5E	SAT	(12.5/3.0 /00.5/ HRS)																			
23	210023Z	12.8N 129.3E	SAT	(13.0/3.0 /01.5/24HRS)																			
24	210023Z	12.9N 129.3E	SAT	(12.5/2.5 /01.0/24HRS)																			
25	210046Z	12.6N 129.1E	SAT	(13.5/3.5 /02.0/24HRS)																			
26	210215Z	13.4N 129.0E	SAT	(IR DATA)																			
27	210320Z	13.3N 128.3E	P	- 2 5 700 150 40 70 40 40 70 30 996 305 11 - - - -																		2	
28	210841Z	14.0N 127.7E	P	- 4 700 180 40 90 50 40 90 80 992 300 11 - - - -																			2
29	211018Z	14.0N 127.2E	SAT	(IR DATA)																			
30	211018Z	14.2N 127.6E	SAT	(IR DATA)																			
31	211136Z	15.0N 127.3E	SAT	(IR DATA)																			
32	211457Z	15.0N 126.0E	SAT	(IR DATA)																			
33	211457Z	14.8N 126.7E	SAT	(IR DATA)																			
34	211825Z	15.6N 125.5E	P	15 15 700 190 55 110 70 - - - 991 300 13 12 - - - -																			3
35	222101Z	16.1N 125.3E	P	5 5 700 120 60 30 55 60 40 65 989 299 13 12 E1P N-S 50X20																			3
36	220055Z	16.4N 125.5E	SAT	(14.0/4.0 /01.0/24HRS)																			
37	220055Z	16.2N 125.3E	SAT	(13.5/3.5 /01.0/24HRS)																			
38	220338Z	16.6N 124.9E	SAT	(12.0/2.0 / / HRS)																			
39	220338Z	16.9N 124.7E	SAT	(IR DATA)																			
40	220338Z	16.9N 125.2E	SAT	(IR DATA)																			
41	220340Z	16.5N 123.7E	LHMN	-																			
42	220900Z	17.8N 124.7E	P	- 2 700 60 50 330 40 65 330 40 982 293 12 11 CTMC - - - 20																			4
43	221144Z	18.4N 123.8E	SAT	(IR DATA)																			
44	221246Z	19.1N 124.2E	SAT	(IR DATA)																			
45	221246Z	18.7N 123.8E	SAT	(IR DATA)																			
46	221247Z	14.0N 123.8E	SAT	(IR DATA)																			
47	221422Z	18.6N 123.7E	P	2 2 700 180 60 90 28 - - - 983 293 13 11 - - - -																			4
48	221620Z	19.4N 124.0E	SAT	(IR DATA)																			
49	221620Z	19.2N 124.2E	SAT	(IR DATA)																			
50	221620Z	19.2N 123.9E	SAT	(IR DATA)																			
51	222246Z	19.4N 122.9E	SAT	(14.0/4.0 /02.0/24HRS)																			
52	222246Z	19.2N 122.7E	SAT	(14.5/4.5 /01.0/19HRS)																			
53	222347Z	19.3N 122.0E	SAT	(14.5/4.5 /00.5/24HRS)																			
54	222347Z	19.3N 122.5E	SAT	(IR DATA)																			
55	230109Z	19.0N 122.0E	SAT	(14.5/4.5 /00.5/24HRS)																			
56	230230Z	19.4N 121.7E	P	- 2 700 110 65 60 40 75 60 35 971 286 10 13 CTMC 20																			5
57	230320Z	19.3N 121.8E	SAT	(IR DATA)																			
58	230320Z	19.2N 121.9E	SAT	(IR DATA)																			
59	230400Z	19.4N 121.7E	LHMN	- CIRCULAR EYE, OPEN SE, 11 NM DIAM																			
60	230505Z	19.3N 121.5E	LHMN	- CIRCULAR EYE, OPEN SE, 15 NM DIAM, 90 PERCENT WALL CLOUD																			
61	230530Z	19.1N 121.6E	P	1 2 700 40 70 20 22 75 270 40 971 284 10 11 CTMC 25																			5
62	230600Z	19.2N 121.4E	LHMN	- CIRCULAR EYE, 18 NM DIAM, 100 PERCENT WALL CLOUD																			
63	230700Z	19.2N 121.2E	LHMN	- CIRCULAR EYE, 22 NM DIAM, 100 PERCENT WALL CLOUD																			
64	230800Z	19.2N 121.0E	LHMN	- CIRCULAR EYE, 15 NM DIAM, 100 PERCENT WALL CLOUD																			
65	230830Z	19.2N 121.3E	P	- 2 700 300 65 200 50 85 290 60 972 283 17 13 CTMC - 12																			5
66	230900Z	19.2N 121.3E	LHMN	- CIRCULAR OPEN EYE, 15 NM DIAM, 100 PERCENT WALL CLOUD																			
67	231000Z	19.2N 121.1E	LHMN	- CIRCULAR EYE, 07 NM DIAM, 100 PERCENT WALL CLOUD</																			

TYPHOON DELLA  
 FIX POSITIONS FOR CYCLONE NO. 29  
 0000Z 21 OCT TO 0000Z 27 OCT

FIX NO.	TIME	POSIT	FIX CAT	ACQNY NAV-MET	FIX LVL	MAX OBS DIR VEL	MAX OBS WIND BKG RING	MAX OBS SFC WIND VEL	MAX OBS BRG RING	OBS MIN SLP	MIN 700MB HGT	FLT LVL	EYE FORM	ORIENT- TATION	EYE DIA	POSIT UP HAUAR	MSN NMMN	
87	232328Z	18.3N 119.5E	SAT	(IR DATA)				PCN 1	UMSP									
88	240024Z	18.0N 119.2E	SAT	(15.0/5.0 / 00.5/24HRS)				NOAA-3									(CONF 02)	
89	240110Z	18.1N 119.7E	SAT	(10.0/5.0 / 02.0/27HRS)				PCN 1	UMSP									
90	240110Z	18.1N 119.7E	SAT	(15.0/5.0 / / HRS)				PCN 1	UMSP									
91	240301Z	18.0N 119.3E	SAT	(15.0/5.0- / 00.5/27HRS)				PCN 1	UMSP									
92	240301Z	18.0N 119.4E	SAT	(IR DATA)				PCN 1	UMSP									
93	240700Z	17.9N 119.1E	LH0H	-													16.6N 120.3E	
94	240800Z	18.1N 118.9E	LH0H	-													16.6N 120.3E	
95	240830Z	18.1N 118.7E	P	3	700	140	75	70	30	90	25	907	283	10	14	CTRC	18	
96	240900Z	17.9N 118.8E	LH0H	-													16.6N 120.3E	
97	241000Z	17.9N 118.5E	LH0H	-													16.6N 120.3E	
98	241100Z	17.9N 118.4E	LH0H	-													16.6N 120.3E	
99	241113Z	17.9N 118.1E	SAT	(IR DATA)				PCN 3	UMSP									
100	241114Z	18.0N 118.2E	SAT	(IR DATA)				PCN 3	UMSP									
101	241200Z	17.9N 118.1E	LH0H	-													16.6N 120.3E	
102	241300Z	17.8N 118.0E	LH0H	-													16.6N 120.3E	
103	241351Z	17.8N 117.8E	SAT	(IR DATA)				PCN 1	UMSP									
104	241430Z	17.9N 117.6E	P	3	4	700	90	85	240	17	-	-	967	281	17	11	CTRC	20
105	241543Z	18.1N 117.4E	SAT	(IR DATA)				PCN 3	UMSP									
106	241543Z	17.9N 117.3E	SAT	(IR DATA)				PCN 1	UMSP									
107	242215Z	17.9N 116.3E	SAT	(15.0/5.0 / 00.5/24HRS)				PCN 1	UMSP									
108	250051Z	18.0N 115.7E	SAT	(10.0/5.0 / 5 / 24HRS)				PCN 1	UMSP									
109	250052Z	18.1N 115.7E	SAT	(15.0/5.0 / 5 / 24HRS)				PCN 1	UMSP									
110	250134Z	17.8N 115.0E	SAT	(15.0/5.0 / 5 / 25HRS)				NOAA-3									(CONF 01)	
111	250424Z	18.0N 115.1E	SAT	(IR DATA)				PCN 1	UMSP									
112	250456Z	18.2N 114.4E	P	3	700	110	90	90	60	100	30	12	958	275	15	11	CONC	15
113	251058Z	18.4N 113.3E	SAT	(IR DATA)				PCN 2	UMSP									
114	251058Z	18.4N 113.3E	SAT	(IR DATA)				PCN 1	UMSP									
115	251058Z	18.3N 113.3E	SAT	(IR DATA)				PCN 1	UMSP									
116	251333Z	18.3N 113.0E	SAT	(IR DATA)				PCN 1	UMSP									
117	251706Z	18.6N 112.3E	SAT	(IR DATA)				PCN 1	UMSP									
118	252341Z	18.9N 111.6E	SAT	(10.0/5.0- / 5 / 24HRS)				PCN 2	UMSP									
119	260033Z	19.0N 110.5E	SAT	(15.0/5.0- / 5 / 24HRS)				PCN 1	UMSP									
120	260405Z	19.2N 109.7E	SAT	(IR DATA)				PCN 1	UMSP									
121	261225Z	19.6N 108.3E	SAT	(IR DATA)				PCN 4	UMSP									
122	261226Z	19.5N 113.1E	SAT	(IR DATA)				NOAA-3									(CONF 01)	
123	261315Z	20.1N 108.1E	SAT	(IR DATA)				PCN 1	UMSP									
124	261336Z	20.5N 107.0E	SAT	(IR DATA)				NOAA-3									(CONF 01)	
125	261647Z	19.5N 107.3E	SAT	(IR DATA)				PCN 3	UMSP									
126	262326Z	19.6N 106.1E	SAT	(IR DATA)				PCN 5	UMSP									

TYPHOON ELAINE  
 FIX POSITIONS FOR CYCLONE NO. 30  
 0600Z 24 OCT TO 0600Z 31 OCT

FIX NO.	TIME	POSIT	FIX CAT	ACQNY NAV-MET	FIX LVL	MAX OBS DIR VEL	MAX OBS WIND BKG RING	MAX OBS SFC WIND VEL	MAX OBS BRG RING	OBS MIN SLP	MIN 700MB HGT	FLT LVL	EYE FORM	ORIENT- TATION	EYE DIA	POSIT UP HAUAR	MSN NMMN			
1	212223Z	11.2N 147.5E	SAT	(11.0/1.0 / / HRS)				PCN 5	UMSP											
2	220157Z	12.1N 147.5E	SAT	(IR DATA)				PCN 5	UMSP											
3	221004Z	13.8N 148.3E	SAT	(IR DATA)				PCN 6	UMSP											
4	221105Z	14.2N 147.7E	SAT	(IR DATA)				PCN 6	UMSP											
5	221438Z	14.5N 147.6E	SAT	(IR DATA)				PCN 6	UMSP											
6	222052Z	15.0N 146.9E	SAT	(11.5/1.5 / 00.5/24HRS)				PCN 5	UMSP											
7	222054Z	15.1N 146.8E	SAT	(11.0/1.0 / / HRS)				PCN 5	UMSP											
8	222315Z	15.1N 146.1E	SAT	(11.5/1.5 / 00.5/24HRS)				NOAA-3									(CONF 02)			
9	230138Z	15.8N 146.1E	SAT	(IR DATA)				PCN 5	UMSP											
10	230947Z	16.4N 144.6E	SAT	(IR DATA)				PCN 6	UMSP											
11	231420Z	17.0N 143.3E	SAT	(IR DATA)				PCN 6	UMSP											
12	231420Z	17.4N 142.9E	SAT	(IR DATA)				PCN 6	UMSP											
13	232049Z	17.3N 141.8E	SAT	(12.0/2.0 / 00.5/24HRS)				PCN 3	UMSP											
14	232428Z	17.3N 141.3E	SAT	(IR DATA)				PCN 5	UMSP											
15	232328Z	16.6N 141.5E	SAT	(12.0/2.0 / 01.0/25HRS)				PCN 5	UMSP											
16	232328Z	16.8N 141.7E	SAT	(11.5/1.5 / / HRS)				PCN 5	UMSP											
17	240301Z	17.6N 141.1E	SAT	(IR DATA)				PCN 5	UMSP											
18	240301Z	17.9N 140.0E	SAT	(IR DATA)				PCN 5	UMSP											
19	240558Z	17.9N 140.2E	P	5	2	700	340	25	250	30	30	240	40	-	308	13	12	CTRC	10	
20	240855Z	18.1N 140.0E	P	5	2	700	340	20	50	20	35	40	40	994	308	13	12	CTRC	15	
21	240932Z	17.9N 139.8E	SAT	(IR DATA)				PCN 5	UMSP											
22	241210Z	18.1N 139.7E	SAT	(IR DATA)				PCN 5	UMSP											
23	241210Z	18.7N 139.5E	SAT	(IR DATA)				PCN 5	UMSP											
24	241230Z	17.6N 139.7E	P	5	2	700	360	25	280	40	-	-	1001	308	14	12	CTRC	15		
25	241543Z	18.5N 139.0E	SAT	(IR DATA)				PCN 5	UMSP											
26	241543Z	18.5N 138.4E	SAT	(IR DATA)				PCN 5	UMSP											
27	242215Z	18.5N 137.9E	SAT	(IR DATA)				PCN 5	UMSP											
28	242310Z	18.1N 137.5E	SAT	(13.0/3.0 / 01.0/25HRS)				PCN 3	UMSP											
29	242310Z	17.7N 137.9E	SAT	(12.5/2.5 / 00.5/24HRS)				PCN 5	UMSP											
30	242310Z	18.3N 137.7E	SAT	(12.0/2.0+ / 00.5/24HRS)				PCN 5	UMSP											
31	242338Z	17.5N 138.1E	SAT	(13.0/3.0 / 01.0/25HRS)				NOAA-3									(CONF 01)			
32	250242Z	17.6N 137.1E	SAT	(IR DATA)				PCN 5	UMSP											
33	250242Z	16.9N 137.4E	SAT	(IR DATA)				PCN 5	UMSP											
34	250908Z	17.3N 135.9E	P	10	10	700	120	30	150	90	35	150	120	994	302	12	12	E11P	E-W	16A15
35	251029Z	17.0N 133.9E	SAT	(IR DATA)				NOAA-3									(CONF 01)			
36	251058Z	17.4N 135.9E	SAT	(IR DATA)				PCN 5	UMSP											
37	251058Z	17.9N 135.6E	SAT	(IR DATA)				PCN 3	UMSP											
38	251058Z	17.6N 135.7E	SAT	(IR DATA)				PCN 6	UMSP											
39	251151Z	17.6N 135.5E	SAT	(IR DATA)				PCN 3	UMSP											
40	251151Z	17.9N 135.4E	SAT	(IR DATA)				PCN 3	UMSP											
41	251524Z	17.4N 134.7E	SAT	(IR DATA)				PCN 5	UMSP											
42	251525Z	17.5N 134.6E	SAT	(IR DATA)				PCN 3	UMSP											
43	252123Z	17.0N 133.8E	P																	

TYPHOON ELAINE  
 FIX POSITIONS FOR CYCLONE NO. 30  
 0600Z 24 OCT TO 0600Z 31 OCT

FIA NO.	TIME	POSII	FIX CAT	ACCHY NAV-MET	FIX LVL	MAX OBS				MAX OBS		OBS MIN SLP	MIN /100MB HGT	FLT LVL /10	EYE FORM	ORIENT- TATION	EYE DIA	PUSIT OF RADAR	MSN NMMH
						DIR	VLL	BRH	RNG	SFC	*IND VLL								
51	201043Z	16.8N 130.4E	SAT	(IK DATA						PCN 1	DMSP								
52	201143Z	17.0N 130.3E	SAT	(IK DATA						PCN 1	DMSP								
53	201143Z	16.9N 130.4E	SAT	(IK DATA						PCN 1	DMSP								
54	201140Z	16.0N 130.0E	SAT	(IK DATA						PCN 1	DMSP								
55	201140Z	16.7N 129.4E	P	3 10	700					NOAA-3									
56	201505Z	17.1N 129.1E	SAT	(IK DATA		190	85	120	60			966	279	10	12	ELTP	N-S	40X15	
57	201505Z	17.0N 130.1E	SAT	(IK DATA						PCN 1	DMSP								
58	202144Z	17.0N 127.7E	SAT	(IK DATA						PCN 1	DMSP								
59	270015Z	16.9N 127.3E	SAT	(15.0/5.0 /100.5/24HRS)						PCN 1	DMSP								
60	270015Z	16.6N 127.2E	SAT	(15.0/5.0 /5 /24HRS)						PCN 1	DMSP								
61	270345Z	16.7N 126.9E	SAT	(15.0/5.5 / / HRS)						PCN 1	DMSP								
62	270346Z	17.0N 126.7E	SAT	(IK DATA						PCN 1	DMSP								
63	270347Z	16.8N 126.7E	SAT	(16.0/6.0 / / HRS)						PCN 1	DMSP								
64	270400Z	16.8N 126.6E	P	3 700	190	90	100	25	70	160	40	947	265	17	11				
65	270830Z	17.0N 125.5E	P	3 700	30	110	300	30	80	300	30		259	19	13	CTRC			
66	271027Z	17.0N 124.9E	SAT	(IK DATA						PCN 2	DMSP							6	
67	271027Z	17.0N 124.9E	SAT	(IK DATA						PCN 1	DMSP								
68	271249Z	18.5N 124.0E	SAT	(IK DATA						NOAA-3									
69	271256Z	17.1N 124.4E	SAT	(IK DATA						PCN 1	DMSP								
70	271256Z	17.4N 124.4E	SAT	(IK DATA						PCN 1	DMSP								
71	271430Z	17.3N 123.7E	P	2 700	330	95	240	60				943	258	20	13	CTRC		7	
72	271626Z	17.3N 123.1E	SAT	(IK DATA						PCN 1	DMSP								
73	272311Z	17.3N 122.4E	SAT	(IK DATA						PCN 2	DMSP								
74	272357Z	17.6N 121.7E	SAT	(14.5/5.0 /10.5/24HRS)						PCN 1	DMSP								
75	272357Z	17.6N 121.5E	SAT	(15.0/5.0 /5 /24HRS)						PCN 1	DMSP								
76	280113Z	16.8N 120.8E	SAT	(15.0/5.5 /10.5/24HRS)						NOAA-3									
77	280328Z	17.6N 120.9E	SAT	(IK DATA						PCN 3	DMSP								
78	280328Z	17.7N 120.6E	SAT	(IK DATA						PCN 3	DMSP								
79	280440Z	17.8N 119.8E	P	3 5 700	100	70	30	70	65	30	60	967	282	15	11	CTRC		8	
80	281344Z	17.9N 118.8E	SAT	(IK DATA						PCN 4	DMSP								
81	281204Z	18.6N 119.4E	SAT	(IK DATA						NOAA-3									
82	281238Z	18.1N 118.7E	SAT	(IK DATA						PCN 3	DMSP								
83	281238Z	18.3N 118.6E	SAT	(IK DATA						PCN 3	DMSP								
84	281430Z	17.9N 118.6E	P	3 5 700	50	90	330	100					284	14	10	CTRC		8	
85	281810Z	17.9N 118.4E	SAT	(IK DATA						PCN 3	DMSP								
86	281810Z	18.0N 118.5E	SAT	(IK DATA						PCN 3	DMSP								
87	281810Z	18.0N 118.5E	SAT	(IK DATA						PCN 3	DMSP								
88	281810Z	18.0N 118.4E	SAT	(IK DATA						PCN 4	DMSP								
89	282255Z	18.2N 117.8E	SAT	(14.5/5.5 /11.5/24HRS)						PCN 3	DMSP								
90	290027Z	18.7N 116.4E	SAT	(14.0/5.0 /11.0/24HRS)						NOAA-3									
91	290120Z	19.1N 115.3E	SAT	(14.0/5.0 / / HRS)						PCN 5	DMSP								
92	290120Z	18.1N 116.9E	SAT	(15.5/5.5 / / HRS)						PCN 1	DMSP								
93	290310Z	18.9N 117.1E	SAT	(14.5/4.5 /5 /27HRS)						PCN 1	DMSP								
94	290310Z	18.9N 117.3E	SAT	(15.0/5.0 /5 /27HRS)						PCN 1	DMSP								
95	290935Z	19.4N 116.0E	P	10 5 700	200	60	110	100	40	120	120	977	290	13	10			9	
96	291138Z	19.2N 115.2E	SAT	(IK DATA						PCN 6	DMSP								
97	291200Z	20.1N 115.5E	LKUM	- / / / /															
98	291315Z	19.2N 114.2E	SAT	(IK DATA						NOAA-3								22.3N 114.2E	
99	291401Z	20.4N 115.1E	SAT	(IK DATA						PCN 6	DMSP								
100	291500Z	20.2N 115.2E	LKUM	- / / / /															
101	291551Z	20.9N 114.9E	SAT	(IK DATA						PCN 5	DMSP							22.3N 114.2E	
102	291551Z	21.5N 115.0E	SAT	(IK DATA						PCN 4	DMSP								
103	292110Z	20.6N 114.3E	LKUM	- 30 / / /														22.3N 114.2E	
104	292240Z	21.2N 114.1E	SAT	(13.0/4.5 /11.5/24HRS)						PCN 5	DMSP								
105	292240Z	21.2N 113.3E	SAT	(14.5/4.5 /5 /24HRS)						PCN 5	DMSP								
106	292300Z	20.7N 114.2E	LKUM	- 20 / / /														22.3N 114.2E	
107	300000Z	20.8N 114.1E	LKUM	- 2591 /														22.3N 114.2E	
108	300100Z	20.9N 114.0E	LKUM	- 2591 /														22.3N 114.2E	
109	300102Z	20.8N 113.6E	SAT	(13.0/4.0 /11.0/24HRS)						PCN 3	DMSP							22.3N 114.2E	
110	300102Z	20.9N 113.6E	SAT	(IK DATA						PCN 5	DMSP								
111	300137Z	20.8N 113.0E	SAT	(13.0/4.0 /11.0/24HRS)						NOAA-3									
112	300300Z	21.0N 113.9E	LKUM	- 254 / /															
113	300400Z	21.0N 113.8E	LKUM	- 2591 /														22.3N 114.2E	
114	300432Z	21.1N 113.8E	SAT	(IK DATA						PCN 5	DMSP							22.3N 114.2E	
115	300520Z	20.7N 113.8E	LKUM	- 55 / / /														22.3N 114.2E	
116	300600Z	20.9N 113.8E	LKUM	- 55 / / /														22.3N 114.2E	
117	300700Z	20.9N 113.8E	LKUM	- / / / /														22.3N 114.2E	
118	301123Z	21.0N 113.3E	SAT	(IK DATA						PCN 6	DMSP								
119	301123Z	21.2N 113.6E	SAT	(IK DATA						PCN 6	DMSP								
120	301200Z	21.0N 113.5E	LKUM	- 3002 /															
121	301343Z	21.3N 113.2E	SAT	(IK DATA						PCN 3	DMSP							22.3N 114.2E	
122	301450Z	20.8N 113.5E	LKUM	- 2061 /														22.3N 114.2E	
123	301714Z	21.0N 113.7E	SAT	(IK DATA						PCN 6	DMSP							22.3N 114.2E	
124	302100Z	20.9N 113.3E	LKUM	- 20 / / /														22.3N 114.2E	
125	302224Z	21.9N 113.6E	SAT	(11.5/4.5 /11.5/24HRS)						PCN 5	DMSP							22.3N 114.2E	
126	310000Z	20.8N 113.0E	LKUM	- 20 / / /														22.3N 114.2E	
127	310043Z	20.7N 113.0E	SAT	(12.0/3.0 /11.0/24HRS)						PCN 3	DMSP							22.3N 114.2E	
128	310043Z	20.6N 112.6E	SAT	(12.5/3.5 /12.0/24HRS)						PCN 5	DMSP								
129	310300Z	20.7N 112.7E	LKUM	- 152 / /															
130	310414Z	20.3N 112.7E	SAT	(IK DATA						PCN 3	DMSP							22.3N 114.2E	
131	010025Z	17.8N 110.2E	SAT	(11.5/1.5 /5 /20HRS)						PCN 3	DMSP								
132	010355Z	17.3N 109.8E	SAT	(IK DATA						PCN 3	DMSP								

TROPICAL STORM FAYE  
FIX POSITIONS FOR CYCLONE NO. 31  
3600Z 31 NOV TO 0600Z 04 NOV

FIX NO.	TIME	POS [L]	FIX CAT	ACQRY	FIX LVL	MAX OBS				MAX OBS			OBS MIN SLP	MIN MGT	FLT LVL TI/TO	EYE FORM	ORIENT- IATION	EYE DIA	POSIT OF RADAR	MSN NMHR
						DIR	VEL	BRG	RNG	SFC WIND	VEL	BRG								
1	302224Z	11.4N 129.4E	SAT	(11.5/1.5 / / HRS)																
2	310232Z	11.8N 128.8E	SAT	(IR DATA )																
3	310232Z	11.5N 128.7E	SAT	(12.0/2.0 / / HRS)																
4	311107Z	12.1N 126.4E	SAT	(IR DATA )																
5	311514Z	12.5N 125.0E	SAT	(IR DATA )																
6	312209Z	13.1N 124.5E	SAT	(11.5/1.5 /5 /24HRS)																
7	010008Z	12.8N 124.0E	SAT	(12.0/2.0 /00.5/23HRS)																
8	010025Z	13.2N 124.1E	SAT	(IR DATA )																
9	010025Z	13.0N 123.9E	SAT	(12.0/2.0 / / HRS)																
10	010352Z	13.0N 123.0E	SAT	(11.5/1.5 / / HRS)																
11	011052Z	12.9N 122.5E	SAT	(IR DATA )																
12	011252Z	13.8N 122.3E	SAT	(IR DATA )																
13	011037Z	13.6N 119.9E	SAT	(IR DATA )																
14	020007Z	13.9N 119.4E	SAT	(12.5/2.5 /01.0/26HRS)																
15	020007Z	13.8N 118.5E	SAT	(13.0/3.0-/01.0/24HRS)																
16	020336Z	13.5N 119.0E	SAT	(13.0/3.5 / / HRS)																
17	020337Z	13.9N 118.9E	SAT	(12.5/2.5+/01.0/24HRS)																
18	020337Z	14.0N 119.0E	SAT	(IR DATA )																
19	021037Z	14.5N 116.7E	SAT	(IR DATA )																
20	021040Z	14.4N 116.9E	P	5 5 700 160 20 120 40 - - - 490 299 15 13 - - - -																
21	021207Z	14.3N 116.1E	SAT	(IR DATA )																
22	021218Z	14.5N 116.5E	SAT	(IR DATA )																
23	021248Z	14.4N 116.5E	SAT	(IR DATA )																
24	021430Z	14.2N 116.2E	P	5 5 700 100 55 360 100 - - - 987 298 14 12 CTMC 20																
25	021618Z	14.5N 116.2E	SAT	(IR DATA )																
26	022320Z	14.8N 114.9E	SAT	(13.5/3.5 /01.0/24HRS)																
27	030022Z	14.8N 113.0E	SAT	(13.5/3.5 /00.5/23HRS)																
28	030130Z	14.9N 114.2E	SAT	(14.0/4.0 /01.0/25HRS)																
29	030317Z	14.9N 112.2E	SAT	(IR DATA )																
30	030318Z	15.0N 113.6E	SAT	(IR DATA )																
31	030318Z	15.0N 113.2E	SAT	(13.5/3.5 /01.0/27HRS)																
32	031203Z	15.2N 112.4E	SAT	(IR DATA )																
33	031600Z	15.5N 111.3E	SAT	(IR DATA )																
34	032302Z	16.0N 109.9E	SAT	(11.5/2.5-/02.0/24HRS)																
35	040112Z	15.9N 109.1E	SAT	(13.0/4.0-/01.0/24HRS)																
36	040441Z	14.6N 109.1E	SAT	(IR DATA )																
37	041148Z	14.7N 106.8E	SAT	(IR DATA )																

TYPHOON GLORIA  
FIX POSITIONS FOR CYCLONE NO. 32  
0000Z 03 NOV TO 1200Z 09 NOV

FIX NO.	TIME	POS [L]	FIX CAT	ACQRY	FIX LVL	MAX OBS				MAX OBS			OBS MIN SLP	MIN MGT	FLT LVL TI/TO	EYE FORM	ORIENT- IATION	EYE DIA	POSIT OF RADAR	MSN NMHR
						DIR	VEL	BRG	RNG	SFC WIND	VEL	BRG								
1	292320Z	7.5N 148.9E	SAT	(11.0/1.0 / / HRS)																
2	010910Z	5.9N 142.1E	SAT	(IR DATA )																
4	012153Z	6.4N 142.1E	SAT	(12.0/2.0 /01.0/22HRS)																
4	012225Z	6.5N 142.0E	SAT	(IR DATA )																
5	012324Z	5.5N 141.2E	SAT	(12.0/2.0 /01.0/24HRS)																
6	020155Z	6.4N 141.4E	SAT	(IR DATA )																
7	020855Z	5.7N 141.8E	SAT	(IR DATA )																
8	021106Z	6.3N 141.8E	SAT	(IR DATA )																
9	021437Z	6.4N 141.8E	SAT	(IR DATA )																
10	022138Z	7.0N 140.9E	SAT	(IR DATA )																
11	022349Z	7.0N 141.0E	SAT	(12.5/2.5 /00.5/23HRS)																
12	022348Z	7.8N 141.0E	SAT	(12.5/2.5 / / HRS)																
13	022348Z	7.8N 140.6E	SAT	(12.5/2.5 /00.5/23HRS)																
14	030045Z	7.4N 141.3E	P	5 5 700 40 35 280 75 40 330 30 490 301 17 11 - - - -																
15	030318Z	7.6N 140.7E	SAT	(IR DATA )																
16	030345Z	7.6N 140.9E	P	5 5 700 180 54 90 24 65 90 20 986 299 17 12 - - - -																
17	031021Z	7.7N 140.0E	SAT	(IR DATA )																
18	031118Z	7.7N 139.4E	SAT	(IR DATA )																
19	031418Z	7.8N 139.3E	SAT	(IR DATA )																
20	032123Z	4.9N 138.3E	SAT	(IR DATA )																
21	032324Z	10.0N 138.0E	SAT	(14.0/4.0 /01.5/25HRS)																
22	032340Z	4.9N 137.8E	SAT	(13.5/3.5+/01.0/24HRS)																
23	032340Z	4.9N 138.2E	SAT	(14.0/4.0 /01.5/24HRS)																
24	040300Z	11.2N 137.1E	SAT	(IR DATA )																
25	040910Z	12.8N 136.2E	P	5 5 700 170 90 70 10 75 160 100 476 290 14 12 - - - -																
26	041006Z	12.9N 136.0E	SAT	(IR DATA )																
27	041211Z	13.4N 135.7E	SAT	(IR DATA )																
28	041452Z	14.1N 134.3E	P	5 3 700 170 80 80 40 - - - 967 282 15 - CTMC																
29	041541Z	14.6N 134.5E	SAT	(IR DATA )																
30	042107Z	15.2N 132.7E	SAT	(IR DATA )																
31	042244Z	15.3N 132.6E	SAT	(IR DATA )																
32	042312Z	15.6N 131.5E	SAT	(15.0/5.0 /01.5/24HRS)																
33	042312Z	15.5N 131.5E	SAT	(15.0/5.0 /01.0/24HRS)																
34	050058Z	15.4N 131.0E	SAT	(14.0/4.0 /5 /24HRS)																
35	050241Z	15.8N 130.7E	SAT	(IR DATA )																
36	050353Z	15.8N 129.7E	P	5 2 700 180 120 40 10 130 270 3 937 257 18 15 CTMC 4																
37	050444Z	16.0N 129.3E	P	5 2 700 - - - - 110 180 10 949 266 21 - CTMC 3																
38	050450Z	16.1N 128.9E	SAT	(IR DATA )																
39	051132Z	16.0N 128.5E	SAT	(IR DATA )																
40	051145Z	16.0N 124.0E	SAT	(IR DATA )																
41	051153Z	16.3N 128.8E	SAT	(IR DATA )																
42	051232Z	16.3N 127.7E	SAT	(IR DATA )																
43	051535Z	15.8N 127.9E	P	10 2 700 130 75 40 15 - - - 955 270 17 15 CTMC 20																
44	052030Z	15.7N 127.0E	P	10 3 700 120 85 30 15 - - - 954 272 18 14 CTMC 20																
45	052244Z	15.7N 126.9E	SAT	(15.5/5.5 /00.5/23HRS)																
46	060010Z	16.1N 126.0E	SAT	(14.5/4.5 /00.5/23HRS)																
47	060035Z	15.9N 126.7E	SAT	(15.5/5.5 /00.5/24HRS)																
48	060222Z	16.1N 126.6E	SAT	(IR DATA )																
49	060404Z	16.3N 126.6E	SAT	(IR DATA )																
50	060450Z	16.3N 126.2E	P	5 3 700 110 100 20 15 130 60 15 436 255 18 12 CTMC 20																

TYPHOON GLORIA  
FIX POSITIONS FOR CYCLONE NO. 32  
0000Z 03 NOV TO 1200Z 09 NOV

FIX NO.	TIME	POSIT	FIX CAT	ACQHY NAV-MET	FIX LVL	MAX OBS			OBS MIN SLP	MIN /100MB MET	FLT LVL T1/T0	EYE FORM	ORIENT-ATION	EYE DIA	POSIT OF RADAR	MSN NMMB					
						FLT DIR	LVL VEL	WIND BRG									MAX SFC WIND VLL	MAX OBS BRG	RNG		
51	060916Z	17.0N 125.2E	P	5	5	100	130	120	60	15	140	60	15	931	250	20	10	CIRC	20		8
52	061117Z	17.1N 124.7E	SAT	(IK DATA	)																
53	061316Z	17.2N 124.3E	SAT	(IK DATA	)																
54	061504Z	17.2N 123.7E	SAT	(IK DATA	)																
55	061606Z	17.1N 124.0E	SAT	(IK DATA	)																
56	062216Z	18.0N 122.0E	SAT	(IK DATA	)																
57	070017Z	18.0N 121.4E	SAT	(14.0/5.0 /W1.5/24HRS)																	
58	070017Z	18.1N 121.2E	SAT	(14.0/5.0 /W1.5/20HRS)																	
59	070120Z	18.0N 121.0E	SAT	(16.0/6.0 /D1.5/25HRS)																	
60	070144Z	17.9N 120.9E	LMDR	-	80 PERCENT WALL CLOUD																
61	070230Z	17.9N 120.5E	LMDR	-	80 PERCENT WALL CLOUD																
62	070320Z	18.0N 120.5E	LMDR	-																	
63	070345Z	18.2N 120.4E	SAT	(16.0/6.0 /S /24HRS)																	
64	070345Z	18.2N 120.6E	SAT	(IK DATA	)																
65	070345Z	17.9N 120.4E	LMDR	-																	
66	070400Z	18.0N 120.3E	LMDR	-																	
67	070430Z	18.0N 120.1E	LMDR	-																	
68	070500Z	18.0N 120.0E	LMDR	-	ECHOES DISORGANIZED																
69	070630Z	18.0N 119.5E	LMDR	-	75 PERCENT WALL CLOUD																
70	070900Z	18.2N 119.2E	LMDR	-																	
71	071101Z	18.7N 119.5E	SAT	(IK DATA	)																
72	071101Z	18.7N 119.3E	SAT	(IK DATA	)																
73	071211Z	19.4N 119.5E	SAT	(IK DATA	)																
74	071258Z	19.6N 119.1E	SAT	(IK DATA	)																
75	071307Z	18.5N 118.1E	SAT	(IK DATA	)																
76	072344Z	19.0N 118.3E	SAT	(IK DATA	)																
77	072358Z	20.1N 117.7E	SAT	(14.0/4.0 /S /24HRS)																	
78	072358Z	19.6N 118.0E	SAT	(14.0/4.0 /S /24HRS)																	
79	080033Z	19.8N 117.9E	SAT	(14.5/5.5 /W1.5/24HRS)																	
80	080130Z	20.0N 117.8E	P	10	10	700	140	140	35	50	30	45	250	20	986	298	10	13	-	-	10
81	080327Z	20.2N 117.5E	SAT	(14.0/5.0 /W2.0/24HRS)																	
82	080327Z	20.5N 117.6E	SAT	(IK DATA	)																
83	080449Z	20.4N 117.6E	P	10	5	700	210	36	100		80	60	250	35	987	298	14	13	-	-	10
84	081046Z	21.9N 117.4E	SAT	(IK DATA	)																
85	081228Z	21.1N 116.8E	SAT	(IK DATA	)																
86	081240Z	22.1N 117.2E	SAT	(IK DATA	)																
87	081323Z	22.2N 116.5E	SAT	(IK DATA	)																
88	081808Z	22.3N 116.9E	SAT	(IK DATA	)																
89	081809Z	22.2N 116.6E	SAT	(IK DATA	)																
90	082229Z	21.9N 116.9E	SAT	(IK DATA	)																
91	082340Z	22.4N 116.7E	SAT	(12.5/3.5 /W1.5/24HRS)																	
92	090010Z	22.2N 116.8E	LMDR	-	51///																
93	090122Z	22.4N 116.7E	SAT	(12.5/3.5 /W1.5/20HRS)																	
94	090143Z	22.5N 116.5E	SAT	(13.0/4.0 /W1.5/20HRS)																	
95	090300Z	22.3N 116.4E	LMDR	-	51///																
96	090308Z	22.7N 116.7E	SAT	(IK DATA	)																
97	090800Z	22.3N 116.4E	LMDR	-	55/// QSTRY																
98	090800Z	22.1N 116.2E	LMDR	-	55///																
99	091212Z	22.5N 116.0E	SAT	(IK DATA	)																
100	091237Z	22.7N 116.0E	SAT	(IK DATA	)																

TROPICAL STORM HESTER  
FIX POSITIONS FOR CYCLONE NO. 33  
1200Z 14 NOV TO 1200Z 15 NOV

FIX NO.	TIME	POSIT	FIX CAT	ACQHY NAV-MET	FIX LVL	MAX OBS			OBS MIN SLP	MIN /100MB MET	FLT LVL T1/T0	EYE FORM	ORIENT-ATION	EYE DIA	POSIT OF RADAR	MSN NMMB					
						FLT DIR	LVL VEL	WIND BRG									MAX SFC WIND VLL	MAX OBS BRG	RNG		
1	112329Z	12.5N 122.9E	SAT	(11.5/1.0 /D0.5/24HRS)																	
2	130008Z	14.3N 121.2E	SAT	(11.5/1.5 / / HRS)																	
3	130040Z	13.1N 121.6E	SAT	(12.0/1.5 /D0.5/20HRS)																	
4	130535Z	14.3N 121.3E	SAT	(IK DATA	)																
5	131111Z	14.0N 119.1E	SAT	(IK DATA	)																
6	131130Z	14.3N 118.0E	SAT	(IK DATA	)																
7	131250Z	14.1N 119.1E	SAT	(IK DATA	)																
8	132350Z	14.8N 117.3E	SAT	(11.5/1.5 /S /24HRS)																	
9	140132Z	14.0N 116.6E	SAT	(11.5/1.5 / / HRS)																	
10	140130Z	13.5N 116.0E	SAT	(12.5/2.5 /D0.5/20HRS)																	
11	140317Z	13.4N 116.2E	SAT	(IK DATA	)																
12	141055Z	13.4N 114.2E	SAT	(IK DATA	)																
13	141055Z	13.4N 114.4E	SAT	(IK DATA	)																
14	141238Z	13.3N 114.0E	SAT	(IK DATA	)																
15	141558Z	13.4N 113.7E	SAT	(IK DATA	)																
16	142338Z	13.2N 111.1E	SAT	(IK DATA	)																
17	150113Z	13.2N 110.9E	SAT	(13.5/3.5 / / HRS)																	
18	150113Z	13.1N 110.9E	SAT	(13.0/3.0 /D1.5/24HRS)																	
19	150440Z	13.0N 110.0E	SAT	(IK DATA	)																
20	151222Z	12.5N 107.9E	SAT	(IK DATA	)																

TYPHOON IRMA  
FIX POSITIONS FOR CYCLONE NO. 34  
1200Z 21 NOV TO 0600Z 02 DEC

FIX NO.	TIME	POSIT	FIX CAT	ACCHY NAV-MET	FIX LVL	MAX OBS					MAX OBS			OBS MIN SLP	MIN HGT	FL1 LVL T1/T0	EYE FORM	URIEN-TATION	EYE DIA	POSIT OF MADAR	MSN NMMB
						DIR	VEL	BHG	RNG	SFC WIND VEL	BRG	RNG	MIN								
1	162138Z	7.0N 154.9E	SAT	(12.0/2.0 / 01.0/24HRS)																	
2	170427Z	9.1N 155.0E	SAT	(IR DATA)																	
3	171019Z	10.0N 155.0E	SAT	(IR DATA)																	
4	171321Z	9.4N 154.8E	SAT	(IR DATA)																	
5	172110Z	10.0N 153.7E	SAT	(11.0/1.0 / / HRS)																	
6	172237Z	10.1N 153.4E	SAT	(IR DATA)																	
7	180954Z	10.5N 152.7E	SAT	(IR DATA)																	
8	190938Z	9.0N 147.2E	SAT	(IR DATA)																	
9	192039Z	8.6N 148.0E	SAT	(11.0/1.0 / / HRS)																	
10	200923Z	7.7N 143.1E	SAT	(IR DATA)																	
11	202228Z	7.9N 141.8E	SAT	(12.5/2.5 / 01.5/24HRS)																	
12	202323Z	8.8N 143.0E	SAT	(11.5/1.5 / 00.5/24HRS)																	
13	210248Z	9.5N 143.3E	SAT	(IR DATA)																	
14	210907Z	9.6N 142.0E	SAT	(IR DATA)																	
15	211109Z	8.5N 139.5E	SAT	(IR DATA)																	
16	211205Z	9.5N 141.8E	SAT	(IR DATA)																	
17	211530Z	9.5N 141.5E	SAT	(IR DATA)																	
18	212133Z	11.2N 140.8E	SAT	P 10 3 1500 120 35 70																1	
19	212150Z	11.5N 140.8E	SAT	(IR DATA)																	
20	212305Z	11.7N 140.5E	SAT	(11.5/1.5 / 5 / 24HRS)																	
21	212305Z	11.2N 140.6E	SAT	(11.5/1.5 / / HRS)																	
22	212305Z	10.2N 140.0E	SAT	(11.5/1.5 / / HRS)																	
23	212338Z	11.0N 140.7E	SAT	(12.5/2.5 / 5 / 24HRS)																	
24	220043Z	10.3N 140.3E	SAT	P 3 5 1500 260 38 150																1	
25	220230Z	11.2N 140.2E	SAT	(IR DATA)																	
26	220304Z	10.3N 140.0E	SAT	P 5 - 1500 30 25 300																	
27	220933Z	11.1N 140.5E	SAT	P 10 20 700 100 30 360																2	
28	221024Z	11.5N 140.0E	SAT	(IR DATA)																	
29	221147Z	11.3N 140.3E	SAT	(IR DATA)																	
30	221911Z	11.1N 140.2E	SAT	(IR DATA)																	
31	221911Z	11.8N 140.3E	SAT	(IR DATA)																	
32	222447Z	12.6N 139.8E	SAT	(13.0/3.0 / 01.5/24HRS)																	
33	222502Z	12.2N 139.0E	SAT	(13.5/3.5 / 01.0/24HRS)																	
34	230211Z	11.9N 139.3E	SAT	(13.0/3.0 / 01.5/27HRS)																	
35	230211Z	12.0N 139.1E	SAT	(IR DATA)																	
36	230506Z	12.3N 139.1E	SAT	P 5 5 700 160 55 80																3	
37	230835Z	12.7N 137.9E	SAT	P 5 5 700 110 70 20																	
38	231018Z	13.2N 138.5E	SAT	(IR DATA)																	
39	231128Z	13.9N 138.2E	SAT	(IR DATA)																	
40	231144Z	13.0N 138.0E	SAT	(IR DATA)																	
41	231453Z	12.9N 137.3E	SAT	(IR DATA)																	
42	231455Z	13.6N 137.6E	SAT	(IR DATA)																	
43	232119Z	13.6N 136.7E	SAT	(IR DATA)																	
44	232120Z	13.3N 136.0E	SAT	(14.0/4.0 / 01.0/19HRS)																	
45	232230Z	13.7N 136.5E	SAT	P 1 2 700 170 82 70																4	
46	240001Z	13.2N 135.5E	SAT	(14.5/4.5 / 01.0/24HRS)																	
47	240010Z	13.5N 136.9E	SAT	(IR DATA)																	
48	240010Z	14.0N 136.4E	SAT	(14.5/4.5 / 01.5/24HRS)																	
49	240152Z	13.8N 136.4E	SAT	(IR DATA)																	
50	240282Z	13.9N 135.6E	SAT	P 2 2 700 190 75 90																4	
51	240354Z	14.0N 135.7E	SAT	(IR DATA)																	
52	241003Z	14.5N 134.5E	SAT	(IR DATA)																	
53	241003Z	14.4N 134.7E	SAT	(IR DATA)																	
54	241050Z	14.5N 134.5E	SAT	(IR DATA)																	
55	241108Z	14.4N 134.6E	SAT	(IR DATA)																	
56	241434Z	14.7N 133.7E	SAT	(IR DATA)																	
57	242246Z	14.9N 133.4E	SAT	(IR DATA)																	
58	242314Z	15.0N 133.5E	SAT	(15.5/5.5 / 01.0/24HRS)																	
59	242352Z	15.0N 133.3E	SAT	(15.0/5.0 / 01.0/24HRS)																	
60	242352Z	15.0N 133.2E	SAT	(15.0/5.0 / 00.5/24HRS)																	
61	250315Z	15.0N 133.0E	SAT	(15.5/5.5 / / HRS)																	
62	250315Z	15.0N 133.1E	SAT	(IR DATA)																	
63	250315Z	15.1N 133.2E	SAT	(15.0/5.0 / / HRS)																	
64	250947Z	15.3N 132.1E	SAT	(IR DATA)																	
65	250947Z	15.4N 131.9E	SAT	(IR DATA)																	
66	251000Z	15.4N 132.6E	SAT	P 4 1 700 270 106 160																6	
67	251200Z	15.5N 132.3E	SAT	(IR DATA)																	
68	251233Z	15.6N 132.3E	SAT	(IR DATA)																	
69	251233Z	15.5N 132.5E	SAT	(IR DATA)																	
70	251557Z	15.7N 131.8E	SAT	(IR DATA)																	
71	251557Z	15.6N 131.9E	SAT	(IR DATA)																	
72	251557Z	15.6N 131.9E	SAT	(IR DATA)																	
73	251557Z	15.7N 132.0E	SAT	(IR DATA)																	
74	252230Z	15.6N 131.4E	SAT	(IR DATA)																	
75	252246Z	15.6N 131.3E	SAT	(IR DATA)																	
76	252333Z	15.8N 130.9E	SAT	(16.0/6.0 / 00.5/24HRS)																	
77	252333Z	15.9N 130.8E	SAT	(16.0/6.0 / 01.0/24HRS)																	
78	252333Z	16.1N 131.0E	SAT	(IR DATA)																	
79	260024Z	15.6N 130.8E	SAT	(15.5/5.5 / 5 / 24HRS)																	
80	260257Z	15.6N 130.1E	SAT	(IR DATA)																	
81	260257Z	15.5N 130.3E	SAT	(IR DATA)																	
82	260257Z	15.6N 130.2E	SAT	(IR DATA)																	

TYPHOON IRMA  
 FIX POSITIONS FOR CYCLONE NO. 34  
 1200Z 21 NOV TO 0600Z 02 DEC

FIX NO.	TIME	POST	FIX CAT	ACQY NAV-MET	FIX LVL	MAX OBS			MAX OBS			OBS MIN SLP	MIN /100MB MGT	FLT LVL TI/TO	EYE FORM	ORIEN- TATION	EYE DIA	POSIT OF RADAR	MSN NMBR
						FLY DIR	LVL VEL	WIND BRG	WIND RNG	SFC WIND VEL	WIND RNG								
101	270238Z	15.7N 125.9E	SAT	(IR DATA	)				PCN 1	UMSP									
102	270238Z	15.8N 126.0E	SAT	(IR DATA	)				PCN 1	UMSP									
103	270452	15.7N 126.2E	P	10	5	700	280	162	180	30	-	-	940	256	19	13	CTRC	30	
104	270800Z	15.6N 125.0E	LHDM	-	8493/														
105	271130Z	15.7N 124.5E	LHDM	-	OPEN CIRCULAR EYE														
106	271058Z	15.5N 124.4E	SAT	(IR DATA	)				PCN 1	UMSP									13.4N 123.7E
107	271058Z	15.5N 124.5E	SAT	(IR DATA	)				PCN 3	UMSP									18.4N 120.5E
108	271100Z	15.6N 124.3E	LHDM	-	848//														
109	271156Z	15.6N 124.4E	SAT	(IR DATA	)				PCN 1	UMSP									13.4N 123.7E
110	271157Z	15.7N 124.2E	SAT	(IR DATA	)				PCN 3	UMSP									
111	271200Z	15.6N 124.3E	LHDM	-	CIRCULAR EYE, 25 NM DIAM														
112	271252	15.5N 124.0E	SAT	(IR DATA	)				NOAA-3										18.4N 120.5E
113	271300Z	15.8N 124.2E	LHDM	-	CIRCULAR EYE, 25 NM DIAM														
114	271400Z	15.6N 123.5E	LHDM	-	8472														18.4N 120.5E
115	271400Z	15.6N 123.8E	LHDM	-	CIRCULAR EYE, SEVERE ATTENUATION, 50 NM DIAM														13.4N 123.7E
116	271500Z	15.7N 123.5E	LHDM	-	CIRCULAR EYE, SEVERE ATTENUATION, 50 NM DIAM														18.4N 120.5E
117	271520Z	15.5N 123.7E	SAT	(IR DATA	)				PCN 3	UMSP									18.4N 120.5E
118	271520Z	15.7N 123.1E	SAT	(IR DATA	)				PCN 1	UMSP									
119	271600Z	15.5N 123.5E	LHDM	-	SEVERE ATTENUATION														
120	271700Z	15.6N 123.4E	LHDM	-	ELLIPTICAL AXIS E-W														18.4N 120.5E
121	271800Z	15.5N 123.1E	LHDM	-	ELLIPTICAL														18.4N 120.5E
122	271900Z	15.5N 123.0E	LHDM	-	ELLIPTICAL														18.4N 120.5E
123	272000Z	15.5N 122.7E	LHDM	-	ELLIPTICAL														18.4N 120.5E
124	272152Z	15.6N 122.5E	LHDM	-	CIRCULAR EYE, 50 NM DIAM														18.4N 120.5E
125	272200Z	15.6N 121.9E	SAT	(IR DATA	)				PCN 5	UMSP									18.4N 120.5E
126	272200Z	15.6N 122.2E	LHDM	-	ELLIPTICAL EYE, 50 NM DIAM														
127	272300Z	15.5N 122.1E	LHDM	-	CIRCULAR EYE, 50 NM DIAM														18.4N 120.5E
128	280030Z	15.3N 121.6E	LHDM	-	CIRCULAR EYE, 50 PERCENT WALL CLOUD														15.2N 120.6E
129	280038Z	15.5N 121.3E	SAT	(15.0/6.0 / W1.0/24HRS)					PCN 5	UMSP									
130	280050Z	15.4N 121.9E	SAT	(13.5/3.5 / S / 23HRS)					NON	UMSP									
131	280100Z	15.4N 121.6E	LHDM	-															
132	280138Z	15.4N 121.4E	LHDM	-	GOOD FIX, 15 DEG SPIRAL OVERLAY														18.4N 120.5E
133	280210Z	15.3N 121.2E	LHDM	-	15 DEG SPIRAL OVERLAY														15.2N 120.6E
134	280330Z	15.2N 121.0E	LHDM	-	CIRCULAR EYE, 60 PERCENT WALL CLOUD, 27 NM DIAM														15.2N 120.6E
135	280338Z	15.2N 121.0E	LHDM	-	GOOD FIX, 60 PERCENT WALL CLOUD, CIRCULAR EYE, 27 NM DIAM														15.2N 120.6E
136	280401Z	15.4N 120.7E	SAT	(IR DATA	)				PCN 6	UMSP									
137	280600Z	15.4N 120.6E	LHDM	-	2093/														
138	280900Z	15.5N 120.1E	LHDM	-	1190/														14.0N 121.0E
139	281130Z	15.3N 119.7E	LHDM	-	CIRCULAR EYE, 45 PERCENT WALL CLOUD, 45 NM DIAM														14.0N 121.0E
140	281130Z	15.2N 119.8E	LHDM	-	CIRCULAR EYE, 50 PERCENT WALL CLOUD, 40 NM DIAM														16.0N 120.3E
141	281140Z	15.0N 118.0E	SAT	(IR DATA	)				NOAA-3										15.2N 120.6E
142	281230Z	15.4N 119.4E	LHDM	-	CIRCULAR EYE, 55-60 PERCENT WALL CLOUD, 35-45 NM DIAM														
143	281500Z	15.7N 118.2E	LHDM	-	CIRCULAR EYE, OPEN E, 50 PERCENT WALL CLOUD, 25 NM DIAM														16.0N 120.3E
144	281600Z	15.4N 118.2E	LHDM	-	CIRCULAR EYE, 60 PERCENT WALL CLOUD, 28 NM DIAM														16.0N 120.3E
145	281634Z	15.3N 117.7E	SAT	(IR DATA	)				PCN 6	UMSP									
146	281715Z	15.3N 118.5E	LHDM	-	ELLIPTICAL EYE, 50 PERCENT WALL CLOUD														16.0N 120.3E
147	281739Z	15.1N 118.6E	P	2	1	700	90	50	300	58	-	-	986	295	17	13	CTRC	25	
148	281810Z	15.3N 118.2E	SAT	-	CIRCULAR EYE, OPEN E, 50 PERCENT WALL CLOUD, 18 NM DIAM								980	293	19	-	CTRC		16.0N 120.3E
149	282205Z	15.5N 117.8E	P	3	5	700	200	65	150	40	-	-							
150	290006Z	15.3N 117.8E	SAT	(14.0/4.0 / 00.5/25HRS)					NOAA-3										
151	290020Z	15.4N 117.5E	SAT	(13.0/4.0 / / / HRS)					PCN 5	UMSP									11
152	290020Z	15.3N 117.6E	SAT	(13.0/4.0 / W1.0/24HRS)					PCN 3	UMSP									
153	290342Z	16.0N 116.8E	SAT	(IR DATA	)				PCN 3	UMSP									
154	290424Z	15.2N 116.4E	SAT	(15.0/5.0 / / / HRS)					PCN 3	UMSP									
155	291005Z	15.8N 115.7E	P	1	3	700	360	65	250	33	50	30	44	982	292	17	14	ELIP SE-NW 20x25	12
156	291250Z	16.4N 115.0E	SAT	(IR DATA	)				NOAA-3										
157	291302Z	15.9N 115.0E	SAT	(IR DATA	)				PCN 5	UMSP									
158	291302Z	15.4N 114.1E	SAT	(IR DATA	)				PCN 6	UMSP									
159	291624Z	15.9N 114.4E	SAT	(IR DATA	)				PCN 4	UMSP									
160	300002Z	16.4N 113.4E	SAT	(14.0/4.0 / 01.0/24HRS)					PCN 1	UMSP									
161	300002Z	16.4N 113.5E	SAT	(14.0/4.0 / 01.0/24HRS)					PCN 1	UMSP									
162	300114Z	15.8N 113.0E	SAT	(14.5/4.5 / 00.5/24HRS)					NOAA-3										(CONF 01)
163	300324Z	16.3N 113.1E	SAT	(IR DATA	)				PCN 1	UMSP									
164	300324Z	16.2N 112.9E	SAT	(15.0/5.0 / S / 24HRS)					PCN 1	UMSP									
165	300505Z	16.3N 113.0E	SAT	(IR DATA	)				PCN 2	UMSP									
166	301205Z	17.4N 112.2E	SAT	(IR DATA	)				NOAA-3										(CONF 02)
167	301243Z	17.3N 112.3E	SAT	(IR DATA	)				PCN 1	UMSP									
168	301243Z	17.0N 112.2E	SAT	(IR DATA	)				PCN 1	UMSP									
169	301606Z	17.6N 112.1E	SAT	(IR DATA	)				PCN 1	UMSP									
170	301606Z	17.6N 111.8E	SAT	(IR DATA	)				PCN 3	UMSP									
171	010028Z	18.8N 111.9E	SAT	(15.0/5.0 / 00.5/24HRS)					NOAA-3										(CONF 02)
172	010129Z	18.7N 112.1E	SAT	(14.0/4.0 / S / 25HRS)					PCN 1	UMSP									
173	010447Z	19.2N 111.8E	SAT	(16.0/6.0 / 01.0/24HRS)					PCN 1	UMSP									
174	011166Z	20.8N 112.0E	SAT	(IR DATA	)				NOAA-3										(CONF 02)
175	011407Z	20.3N 112.0E	SAT	(IR DATA	)				PCN 4	UMSP									
176	011500Z	20.3N 111.7E	LHDM	-	55//4														
177	011728Z	20.9N 112.4E	SAT	(IR DATA	)				PCN 5	UMSP									22.3N 114.2E
178	011800Z	21.8N 112.2E	LHDM	-	55//3														
179	020107Z	21.7N 113.4E	SAT	(IR DATA	)				PCN 5	UMSP									22.3N 114.2E

TROPICAL STORM JUDY  
 FIX POSITIONS FOR CYCLONE NO. 35  
 0000Z 18 DEC TO 0000Z 19 DEC

FIX NO.	TIME	POSIT	FIX CAT	ACRY NAV-MET	FIX LVL	MAX OBS FLT LVL WIND				MAX OBS SFC WIND			OBS MIN SLP	MIN 700MB HGT	FLT LVL TI/TO	EYE FORM	ORIENT- TATION	EYE DIA	POSIT OF MAUAR	MSN NMBR
						DIR	VEL	BKG	RNG	VEL	BKG	RNG								
1	140050Z	8.0N 127.7E	SAT	(12.0/2.0 / / HRS)																
2	150032Z	12.4N 122.5E	SAT	(11.5/1.5 / / HRS)																
3	151313Z	12.3N 121.6E	SAT	(IR DATA )																
4	160013Z	12.6N 119.7E	SAT	(11.5/1.5 /S /24HRS)																
5	161325Z	13.5N 116.8E	SAT	(IR DATA )																(CONF 02)
6	162352Z	14.8N 115.8E	SAT	(IR DATA )																
7	170150Z	13.8N 116.0E	SAT	(12.5/2.5 /01.0/25HRS)																(CONF 02)
8	171237Z	15.1N 113.5E	SAT	(IR DATA )																
9	171317Z	16.0N 113.5E	SAT	(IR DATA )																(CONF 02)
10	180129Z	13.2N 112.5E	SAT	(13.0/3.0 /00.5/24HRS)																(CONF 01)
11	180436Z	12.9N 112.0E	SAT	(12.0/2.0 / / HRS)																
12	181210Z	12.5N 109.8E	SAT	(IR DATA )																(CONF 03)
13	181717Z	12.7N 109.1E	SAT	(IR DATA )																

TROPICAL STORM KIT  
 FIX POSITIONS FOR CYCLONE NO. 36  
 0600Z 19 DEC TO 0600Z 24 DEC

FIX NO.	TIME	POSIT	FIX CAT	ACRY NAV-MET	FIX LVL	MAX OBS FLT LVL WIND				MAX OBS SFC WIND			OBS MIN SLP	MIN 700MB HGT	FLT LVL TI/TO	EYE FORM	ORIENT- TATION	EYE DIA	POSIT OF MAUAR	SN NMBR
						DIR	VEL	BKG	RNG	VEL	BKG	RNG								
1	171052Z	5.5N 143.0E	SAT	(IR DATA )																
2	172317Z	7.0N 140.9E	SAT	(11.5/1.5 / / HRS)																
3	180254Z	8.0N 138.2E	SAT	(IR DATA )																
4	181218Z	11.0N 135.5E	SAT	(IR DATA )																
5	182318Z	10.2N 134.4E	SAT	(12.0/2.0 /00.5/24HRS)																
6	190029Z	12.0N 132.9E	SAT	(11.5/1.5 /00.5/24HRS)																(CONF 02)
7	190235Z	10.0N 133.4E	SAT	(IR DATA )																
8	190235Z	10.9N 133.0E	SAT	(12.0/2.0 / / HRS)																
9	191200Z	11.3N 130.3E	SAT	(IR DATA )																
10	191516Z	11.6N 129.2E	SAT	(IR DATA )																
11	191517Z	11.5N 129.6E	SAT	(IR DATA )																
12	200042Z	11.9N 128.0E	SAT	(11.5/1.5 / / HRS)																
13	200125Z	11.0N 127.5E	SAT	(12.5/2.5 /01.0/25HRS)																
14	200358Z	11.0N 127.4E	SAT	(IR DATA )																
15	200952Z	10.8N 125.2E	SAT	(IR DATA )																
16	201206Z	13.0N 124.0E	SAT	(IR DATA )																
17	201232Z	10.6N 123.9E	SAT	(IR DATA )																
18	201840Z	11.5N 124.1E	SAT	(IR DATA )																
19	210032Z	11.3N 122.7E	SAT	(11.0/1.5 / / HRS)																
20	210024Z	14.2N 122.8E	SAT	(12.5/2.5 /S /23HRS)																(CONF 02)
21	210340Z	11.3N 121.9E	SAT	(IR DATA )																
22	210340Z	11.3N 121.9E	SAT	(11.0/1.0 / / HRS)																
23	211022Z	14.0N 118.0E	SAT	(IR DATA )																(CONF 02)
24	220005Z	10.2N 117.1E	SAT	(11.0/1.5 /00.5/24HRS)																
25	221201Z	13.0N 115.0E	SAT	(IR DATA )																(CONF 01)
26	221247Z	13.1N 114.5E	SAT	(IR DATA )																
27	231228Z	7.1N 112.5E	SAT	(12.0/2.0 / / HRS)																
28	231228Z	7.5N 112.7E	SAT	(12.0/2.0 / / HRS)																
29	231255Z	7.6N 109.0E	SAT	(IR DATA )																(CONF 02)
30	231444Z	7.5N 110.1E	SAT	(IR DATA )																
31	231725Z	7.0N 109.3E	SAT	(IR DATA )																
32	240110Z	7.0N 109.0E	SAT	(12.0/2.0 / / HRS)																
33	240110Z	7.1N 109.0E	SAT	(12.0/2.0 /S /24HRS)																
34	240115Z	7.1N 106.5E	SAT	(11.5/1.5 /00.5/24HRS)																(CONF 01)
35	240420Z	9.0N 107.1E	SAT	(IR DATA )																